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CONTENTS

POLIOMYELITIS: A BRIEF RESUME OF EPIDEMIOLOGY, SYMPTOMATOLOGY AND TREATMENT 523
William H. Park, M. D., and Josephine B. Neal, M. D., New York

PRESENT STATUS OF PNEUMOPERITONEUM AS AN AID IN THE RADIOLOGICAL DIAGNOSIS OF ABDOMINAL LESIONS 529
L. R. Sante, M. D., F. A. C. R., F. A. C. P., St. Louis, Missouri,

DIFFERENTATION OF TUBERCULOSIS AND BRONCHIETASIS 534
W. Warner Watkins, M. D., F. A. C. P., Phoenix, Arizona.

MATERNAL MORTALITY 538
F. B. Sharp, M. D., Phoenix, Arizona.

CLINIC ON CARDIORENAL DISEASE AND DIABETES 541
Dr. Frederick Allen, New York.

SYMPTOMS AND DIAGNOSIS OF CHRONIC APPENDICITIS 546
Frank J. Milloy, M. D., Phoenix, Arizona.

SYMPTOMATOLOGY AND DIAGNOSIS OF CHRONIC APPENDICITIS IN CHILDREN 548
Dudley Fournier, M. D., Phoenix, Arizona.

CHRONIC APPENDICITIS—PATHOLOGY AND X-RAY DIAGNOSIS 550
Harlan P. Mills, M. D. Phoenix, Arizona.

MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST—GENERAL BUSINESS SESSION 552

MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST—MEMBERSHIP ROSTER 553

MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST—PROCEEDINGS (Continued from November issue) 555

EDITORIAL

THE PARKER BILL 558
DIPTHERIA IN ARIZONA AND NEW MEXICO 559
FIRST VACCINATIONS AGAINST SMALLPOX IN THE UNITED STATES 560
SANTA CRUZ COUNTY (Arizona) MEDICAL SOCIETY 562
BERNADILLO COUNTY (New Mexico) MEDICAL SOCIETY 562
COCHISE COUNTY (Arizona) MEDICAL SOCIETY 562
YUMA COUNTY (Arizona) MEDICAL SOCIETY 5 2
PERSONALS AND NEWS 562
SOCIAL SERVICE CLINIC (Phoenix, Arizona) 567
STAFF MEETING, DEACONESS HOSPITAL (Phoenix) 568

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POLIOMYELITIS

A Brief Resume of Epidemiology, Symptomatology and Treatment.

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JOSEPHINE B. NEAL, M. D.,
New York.

Presented before the Medical and Surgical Association of the Southwest at their Clinical Congress and Annual Meeting, at El Paso, Texas, November 2 to 5, 1927.

During the summer of 1927, poliomyelitis has been unusually prevalent in the United States. The first outbreaks of serious proportions were in New Mexico, Texas and Southern California, late in June and early in July. These were of rather short duration. Later in July, a fairly large number of cases were reported in Ohio and a much smaller number in West Virginia. In Massachusetts, the number of cases increased rather rapidly in September. In August and September, there was a sharp increase in the cases in Northern California. The Public Health Report states that for fourteen weeks, from July 3 to October 8, 1927, reports from the state health officers show 5,227 cases of poliomyelitis as compared with 1,340 and 3,772 for the corresponding periods of 1926 and 1925 respectively.

This has focused our attention again on this disease. It may be worth while, therefore, to summarize briefly the more important points of our present knowledge of infantile paralysis.

It is comforting to realize that a territory badly infected one year is apt to have but little poliomyelitis during the next few years.

The past eleven years have not developed any outstanding facts. The appearance of epidemic encephalitis, formerly called lethargica and often erroneously called sleeping sickness, has added another disease with a predilection for the central nervous system. The behavior of its virus affords many interesting points for comparison with that of poliomyelitis and, in a small percentage of cases, a very difficult point in differential diagnosis.

ETIOLOGY

It has been known since 1909, when Landsteiner and Popper produced experimental poliomyelitis in monkeys, that the disease is due to a virus present in the brain and spinal cord substance. Very soon after this, Flexner and Lewis, Landsteiner and Levaditi, and others, succeeded in transmitting the disease from monkey to monkey, and these same workers also proved that the virus was filtrable. The presence of this virus has also been demonstrated in the filtrate of the naso-pharyngeal washings and in washings from the trachea and from the intestines. For some time the tiny globoid bodies which passed fine filters, described by Flexner and Noguchi in 1914, were believed to be the specific etiological agent, but this work has failed to be corroborated and the discoverers of the globoid bodies at present express great doubt as to their significance. They are probably contaminations or organisms growing in symbiosis with the true viurs.

EPIDEMIOLOGY

Although a certain number of older children and adults develop poliomyelitis, it is essentially a disease of early childhood. In most epidemics about ninety per cent of cases occur in the first ten years of life, and the greatest incidence is usually in the second and third years. A somewhat larger number of males than females are attacked by the disease. With rare exceptions epidemics have occurred in the summer months.

AGE INCIDENCE OF THE THREE DISEASES DURING 1926 IN NEW YORK CITY

Age	Cerebro Spinal Meningitis Total		Epidemic Encephalitis or Lethargica Total		Poliomyelitis Total	
	C	D	C	D	C	D
0-4	88	59	47	24	59	15
5-9	21	15	17	8	25	3
10-14	8	3	25	11	11	7
15-19	10	8	24	14	6	3
20-24	12	5	30	14	3	1
25-29	5	4	27	22	2	1
30-34	5	3	22	10	1	0
35-39	8	5	20	14	0	0
40-44	3	3	19	12	1	1
45-49	2	2	16	13	1	1
50-54	3	3	17	13	0	0

From the large number of individuals who escape the disease, although intimately exposed to it by a patient in the family, we may assume that a large percentage of people have an immunity either natural or acquired by some process the action of which we do not cetrainly know. It does not seem reasonable to assume that all, or even a large proportion of these immune individuals, have suffered from a mild and unrecognized form of the disease. As only a small number of cases give a history of exposure, it is commonly accepted that the healthy carrier or the convalescent from an undiagnosed attack is the main source of infection. This will be taken up in detail later. In cases occurring in rural communities, the history is often obtained that the patient had been visited by or had visited someone in whose family a case had rather recently occurred, or had attended a country fair or some other large gathering of people a few days before the illness developed. It is obviously impossible to have a very definite idea of the incubation period, since the number of cases with histories of direct exposure is so small. Wickman stated that it was probably from three or four to ten days. From a study made by the Rockefeller Foundation under the direction of Dr. A. H. Doty, in New York City in the epidemic of 1916, it seemed probable that the incubation period was usually seven or eight days.

Investigations of epidemics have pretty well ruled out animals and insects as carriers of the virus. In a small epidemic in Cortland, New York, in 1925, investigated by Knapp, Godfrey and Aycock, it was shown that contaminated milk might be a factor in its spread. A number of persons supplied with raw milk by one in whose family a case had occurred, developed the disease, while families supplied by other distributors had none. This makes it important to look into the possibility of milk being a carrier of the infection.

SYMPTOMATOLOGY

In dealing with a disease the manifestations of which are so variable, both in extent and severity, as are those of poliomyelitis, any brief discussion of the symptoms must be more or less incomplete. The symptoms of poliomyelitis must be considered as divided into two phases: the first showing evidence of a general systemic infection; the second, that of the involvement, to a greater or less extent, of the central nervous system. A type of onset described by Kling, Levaditi and others, remarked upon in the Study of Poliomyelitis by the Meningitis Division of the Research Laboratory of the City Health Department, in 1917, and emphasized by Draper in his "dromedary' 'type, is that in which the initial sympotms (usually of a gastro-intestinal or anginal nature with fever) are followed by a remission of several days, after which there is an exacerbation of these symptoms, usually with paralysis developing immediately. From our experience and from a study of the literature, we believe that this twpe of onset is usually less common than that in which the symptoms progress without pronounced remissions. In a still smaller group of cases the onset is insidious. Usually, however, it is abrupt.

Fever is the most constant as well as the first symptom. As a rule, it is fairly high and of comparatively short duration. Next to fever, the most frequent symptom is hyperesthesia, or diffuse tenderness, over the whole body, more marked, perhaps, along the spine and in the legs. Usually there is a decided drowsiness and the patient manifests great irritability when disturbed. There is often profuse sweating. Headache, vomiting and constipation or diarrhea, are common symptoms. Occasionally there may be retention of urine in the more severe cases. Convulsions are not especially common. Muscular twitchings, or tremor, occur quite often. Delirium is rather rare. In some epidemics an erythema has been observed in a certain proportion of cases. Sensory disturbances, other than the hyperesthesia already noted, are extremely rare.

While certain of these symptoms may well be due to involvement of the central nervous system, within the first twenty-four to forty-eight hours, there is usually additional evidence by more or less well-marked signs of meningeal irritation. These are: a certain degree of antero-posterior stiffness of the neck, Kernig's sign or the spinal sign (pain on anterior flexion of the spine) and a postiive Macewen's sign. Other indications that the central nervous sys-

tem is being attacked, may be ascertained by the examination of the reflexes. Very early, the tendon reflexes are likely to be exaggerated and the superficial reflexes are normal or active. As the disease progresses, however, the tendon reflexes are usually diminished, or lost, and they are frequently unequal. A diminution or loss of a reflex is often, but not invariably, an indication of an approaching paralysis. The superficial reflexes of the trunk are retained unless there is a paralysis of the back or abdomen.

If the lesion of the central nervous system goes on to paralysis, this usually makes its appearance within three to four days. Of course this period is longer in the type of case in which there is a stage of remission. But, in this type, the paralysis usually appears quite promptly after the exacerbation of symptoms.

Much attention has been devoted to an attempt to classify the disease into types. Wickman described eight types on both a clinical and a pathologic basis. From a study of the cases in the epidemic of 1916, we suggested a classification based on the anatomical location and the degree of the lesion.

Nonparalytic Type. Under this head are included cases in which the nerve cells are not sufficiently injured to produce paralysis. There may be weakness. Under this type should be classed meningitis cases and also those cases somewhat like tuberculous meningitis, but without motor disturbance, which we have called encephalitic, since the chief symptom seemed to be a depression of the sensorium. This is really only an accentuation of the drowsiness and stupor characteristic of the early stages. In these cases the motor cortical areas are not involved.

Ataxic Type. The motor nerve cells are evidently not involved, but there is lack of coordination, ataxia, nystagmus, etc. In some cases an ataxic gait is the only sign of involvement of the central nervous system other than the sensory symptoms. The anatomic basis for this, proved by the postmortem findings of involvement of the cerebellum, Clark's column and the intervertebral ganglia. This type is very rare.

Type with Cortical or Upper Motor Neuron Paralysis. The upper motor neuron is affected, with resulting paralysis. A true spastic paralysis is rare. More often are seen evidences of involvement of the upper motor neuron, increase of reflexes, or severe and prolonged convulsions. These convulsions are general and epileptic in character and may last for several hours.

Type with Spinal or Subcortial Paralysis. The lower motor neuron is affected, with resulting flaccid paralysis. This is, of course, the most common form and the one first recognized and described. This type includes the rapidly ascending type resembling Landry's paralysis and those cases with bulbar paralysis.

In recent years much discussion has centered about the question of the percentage of cases in which the disease does not progress beyond the systemic phase or, at most, beyond the stage of meningeal irritation. Some authorities place this number as high as seventy-five or eighty per cent.; the more conservative, at perhaps twenty-five to thirty per cent. It is a question that it will be difficult to decide. Probably the higher percentage is the more nearly correct.

Poliomyelitis comes at a season when acute gastro-intestinal disturbances are common and it attacks, especially, children of an age when such disturbances are most prone to appear. Many children with gastro-enteritis show quite marked signs of meningeal irritation. On lumbar puncture, the spinal fluid is increased and, if convulsions have been present, there may be an increase in the cells or proteins or both, so that an examination of the spinal fluid, while it would help, would not decide the diagnosis.

The examination of the spinal fluid is the most valuable laboratory aid in the diagnosis of poliomyelitis, but even here there are no pathognomonic findings, as, for example, the infecting organism in a purulent or a tuberculous meningitis. It is by ruling out other conditions that it is of most value, and it is of the greatest service only when correlated with a careful clinical study of the case.

The spinal fluid in poliomyelitis is usually increased in amount and escapes under pressure. It is clear or slightly hazy in appearance, and sometimes shows the fibrin web formation which was formerly considered pathognomonic of tuberculous meningitis.

In poliomyelitis, the spinal fluid shows evidence of an inflammatory reaction—there is a varying increase in the cells and in the albumin and globulin. In a few cases, these evidences of an inflammatory reaction are well marked; in most cases, they are moderate; while, in a few cases at the other extreme, they are so slight and the fluid so nearly approaches normal that it is difficult to make a definite statement in regard to the findings.

The cell count ranges from a slight increase to 1000 or more. These high counts

are rare. So also are counts of ten or less. The usual count runs from fifteen or twenty to 100. Much depends on the stage of the disease at which the puncture is done. The counts tend to fall off rather rapidly after the first week and are usually nearly normal by the end of the second week. It has been stated that, very early, the cells are polymorphonuclear, and that these are replaced later by mononuclears. This was not our experience in 1916, when we had the opportunity of examining many fluids in the early stages. We found, at that time, a few fluids (thirty-nine out of a series of 2000) in which polymorphonuclears predominated. These fluids were obtained at different stages of the disease, so we were inclined to believe that the polymorphonuclears represented an unusual type of meningeal reaction—not a stage of the disease.

The protein is slightly to moderately above normal. The increases in protein and cells do not necessarily run parallel. The protein increase usually remains somewhat longer than does the increase in cells.

The sugar in the spinal fluid of poliomyelitis is normal or high. It may be more than 100 mg. per 100 c. c. and is frequently above eighty. This point should be emphasized, as certain workers have called attention to the high sugar that not infrequently is found in the fluids of epidemic encephalitis, and have considered it a diagnostic point.

The chlorides in the fluids of poliomyelitis, run from slightly below normal to somewhat above normal and seem to have no significance. The blood in poliomyelitis shows a moderate leucocytosis and polynucleosis.

PROGNOSIS AND MORTALITY

The prognosis must be considered from the standpoint both of life and disability.

The mortality varies greatly in different epidemics and the figures given are probably always too high on account of the mild cases that are not diagnosed. In New York, in 1916, the mortality was extremely high —twenty-seven per cent. It is usually given as ten to fifteen per cent. The mortality is particularly high in the first two years of life among adults. Most cases resulting fatally die during the first week of the disease. While those cases with bulbar paralysis constitute the vast majority of the fatal cases, patients developing such paralysis are by no means to be considered as having a hopeless prognosis. Many of them make perfectly good recoveries. These have been noted in a number of instances in the present and past in New York City.

It is generally accepted that the most common cause of death is respiratory failure, due to the progressive paralysis of the muscles of respiration. The question of death occurring as a result of respiratory failure, or of cardiac failure, due to the respiratory or cardiac centers being involved, has received but little consideration. Wickman, referring to the occasional occurrence of Cheyne-Stokes respiration, says that it is undoubtedly due to the respiratory center being affected. He also mentions the possibility of the involvement of the vagus. Realizing that this question lies, to a great extent, in the realm of speculation, certain observations point to the desirability of giving it serious consideration. It is certainly possible to conceive from the pathologic findings that this condition may exist. Cases occur in which the only lesions are in the bulb and pons, there being no involvement of the cervical regions of the cord, where the nerves controlling the muscles of respiration take their origin.

During the epidemic, death occurred suddenly, without signs of cardiac failure, in a few cases in which there was no paralysis of the muscles of respiration. In one case death occurred without evidence of paralysis, evidently from cardiac disturbance. For twenty-four hours preceding death there had been intervals of great irregularity of the heart, though the heart itself, from the physical examination, was apparently normal. Such a condition might conceivably arise from a progressive involvement of the vagus center in the medulla.

In several instances there was evidence of a transient involvement of the cardiac or respiratory centers, as shown by marked irregularity of the heart or respiration, which cleared up completely.

As regards disability, it is obvious that many patients belong to the non-paralytic group. These make perfect recoveries. In other cases there is a transient weakness or paralysis, due, probably, to an edema around the cells, which clears up promptly and completely. In the cases with paralysis, proper orthopedic treatment often brings about surprisingly good results even when the paralysis is extensive.

Aside from muscular disability, poliomyelitis is apparently very free from after effects. The virus does its worst in a few days—dies out completely, and any further change is toward recovery. Its action is in striking contrast to that of epidemic encephalitis, which acts, as a rule, slowly, gradually involving different parts of the central nervous system, is apparently quiescent for months or years, and then becomes again active.

TREATMENT

Prophylaxis—Since it is accepted that poliomyelitis is spread largely by human contact, the isolation of the patient is important. It would be desirable also, as far as possible, to isolate contacts as well. Since the virus is known to exist in the nasopharyngeal secretions and in the discharges from the bowel, measures should be taken to dispose of these secretions and also to avoid contamination by them. Amoss and Taylor have shown that neutralizing bodies are found in the nasopharyngeal secretions. It is, therefore, at present doubtful whether it is better to use nasal irrigations and gargles of normal saline, or to use antiseptics which, while acting more effectually on the virus, may have a deleterious effect on these secretions. This is a suitable subject for careful investigation. Some of the newer dyes, while destructive to micro-organisms, seem to have little, if any, deleterious effect on the mucous membranes.

General—During the acute stage general symptomatic treatment should be employed, with complete rest. The relief of the increased intracranial pressure, by lumbar puncture, is practically always of therapeutic value. Sometimes a single puncture is sufficient but it should be repeated whenever there are signs of meningeal irritation or increased intracranial pressure. If paralysis develops, the paralyzed muscles should be adequately supported by pads, splints or other devices, until all tenderness or other indications of inflammation have disappeared. The patient should then be placed in the hands of a competent orthopedist.

Specific—The use of serum, either from convalescent patients or from horses immunized by organisms supposed to be the cause of the disease or with the brain substance of monkeys killed while having the disease, has been more or less widely advocated. As regards the use of serum from horses immunized against the strain of streptococci isolated by Rosenow, the results, to say the least, are doubtful. Since the etiological agent is accepted by most authorities as being unknown, it is difficult to see how any specific action could be expected. It is used very little in New York.

At a symposium on poliomyelitis, a little more than a year ago, Amoss stated that the horse sera, from horses so treated, that he had tested did not have the power of neutralizing the virus. Hence their use appears to have no scientific foundation.

The immune human serum has been recommended for use both intraspinally and intravenously. Some years ago the emphasis was laid on the intraspinal injections. In the minds of the general public, and of many physicians, there exists a close analogy between the use of serum in epidemic meningitis and in poliomyelitis, and its success in the former has influenced them to have faith in its success in the latter.

The pathology of the two conditions, however, is quite different. In acute purulent meningitis, the process is limited almost entirely to the meninges, the brain and cord substance being little, if at all, involved, though there may be some secondary congestion. In poliomyelitis, however, the pathologic picture is reversed. Here, the brain and cord substance is mainly involved, whereas the inflammation in the meninges is secondary. Injecting a foreign substance into the slightly inflamed meninges sets up, in many cases, an acute aseptic meningitis, as is shown by changes in the spinal fluid, and clinically, by the increased temperature, rigidity of the neck and other signs of meningeal irritation. It is possible, but hardly probable, that this increased inflammatory reaction may tend to accentuate, indirectly, the inflammatory changes already existing in the subjacent substance of the brain and cord.

In certain cases that we observed, we thought that such a harmful reaction did take place—but it may have been due to the antiseptic or hemoglobin in the serum. Our opinion was further borne out by animal experiments performed by Abramson. He found that monkeys treated by intraspinal injections of convalescent human serum. On the other hand, we have had the control monkeys, which received no serum. On the othe rhand, we have had the opposite impression in many cases, and it is the belief of many that good results follow the use of serum.

The value of the intravenous injections of convalescent serum appeals to us more strongly, but we must still consider it an open question. To be of value, it is commonly conceded, the serum must be used in the pre-paralytic stage. It is recognized that the diagnosis at this stage is extremely difficult. Therefore, until a large series of cases is treated, with at least a nearly equally large number of untreated cases as controls, in some epidemic, the question must remain in doubt. Reports of the results of the serum in a few individual cases, mean very little. Many apparently severe cases of poliomyelitis often make surprisingly good recoveries when only lumbar puncture is used. Unfortunately, there is not the same tendency to publish the results of these recoveries as there is to pub-

lish those in which some supposedly specific treatment was used.

In a personal communication to me, Rosenau of Harvard University told of the very recent apparent success of Aycock in the first fifty cases of early poliomyelitis treated by giving, on the first day, 15 c. c. of convalescent serum intraspinally and 30 c.c. intravenously, and on the second day, 15 c.c. intraspinally. Only two of the fifty cases developed paralysis.

Zingher, however, working with me in 1916, had almost equally good results with intraspinal injection in the preparalytic cases. At the Willard Parker Hospital, he treated twenty-five cases in the preparalytic state, and only one developed paralysis. He treated similarly eighty-eight cases that had developed paralysis. Eighteen died during the first twenty-four hours; nine, within forty-eight hours; and five, later—a total of thirty-two deaths among eighty-eight cases, or, rather, eighty-two, for six other cases died of complications such as pneumonia.

As a control, he injected ten preparalytic cases with normal horse serum. One developed bulbar symptoms within twelve hours and died shortly afterward; the others recovered without developing paralysis.

At a private hospital on the health department grounds, he injected fifteen additional preparalytic cases. Nine remained free from paralysis, two developed paralysis within twenty-four hours, and four later. Four of the six completely recovered.

He injected, for other physicians, fourteen preparalytic cases. Eleven remained free from paralysis; three developed paralysis. Two completely recovered.

In all, Zingher treated fifty-four preparalytic cases. The majority received two doses of serum intraspinally. Forty-four recovered without developing paralysis. Of the remaining ten, none died, and in only four of the fifty-four did paralysis remain. Zingher concludes his report with the following comment: "It is known that in poliomyelitis we have a group of abortive nonparalytic cases, in patients who go through the premonitory symptoms but do not develop paralysis. It is difficult to state, therefore, how many of the patients would have remained free from paralysis without the serum treatment. Conclusions based on any form of treatment, in a disease which is so variable in symptomatology and in prognosis, both as to life and disability, must be given with reserve. It seems to me, however, that the action of the convalescent serum in poliomyelitis, is beneficial." "When carefully observed and controlled, the treatment is harmless. In the more severe cases, in which paralysis is developing, the value of the serum is more doubtful: but even here we should continue to use it, hoping, in the course of time, to obtain more definite results."

We are now immunizing a horse with the virus from the brains of monkeys. As you know, the monkey is the only kind of animal that develops poliomyelitis after experimental infection. The serum already has protective substances in it and we expect to use it on my return, both intravenously and intraspinally. We will first try its therapeutic value in monkeys. I am looking forward with interest, but hardly with expectation that the results of its use will be definitely favorable.

Let us consider, briefly, the presence of the microbe of infantile paralysis in human beings—the sick, the convalescent, and healthy contacts.

In December, 1908, Landsteiner and Popper communicated the fact that they had succeeded in transferring poliomyelitis from human beings to monkeys. This opened up a way for testing for the presence of the virus, even though we did not know the organism itself.

Flexner proved that the virus was in the mucous membranes by cutting out a piece from the nasal mucous membrane of a monkey recently dead of poliomyelitis and producing the disease with it in another. The tonsillar tissues also produced the disease. Attempts to produce the disease with washings from the respiratory and intestinal mucous membranes, however, failed, and the question was in doubt as to whether the mouth and intestinal secretions were infectious.

During some of the epidemics of infantile paralysis, observations have been made that gastro-intestinal disturbances occur in children, not only during the epidemic, but before any cases of paralysis appear. There is considerable possibility that these symptoms are due to an infection of the intestinal mucous membrane with the virus.

In 1911, Kling, Pettersson and Wernstedt made a remarkable study of the nasal, tracheal and intestinal secretions of persons dying of poliomyelitis, of those sick of the disease, and of those in contact with persons sick of the disease. They were able to infect monkeys with the secretions from each of these classes and, more striking still, they found, in many of the convalescents and infected carriers, that the virus persisted for two or even three months. If this work is reliable, and there seems to be no doubt that it is, the decision as to when

isolation shoudl be terminated becomes a very difficult one. It would seem as if our present period of quarantine is too short.

THE POSSIBILITY OF USING A VACCINE

In 1910, Flexnuer and Lewis tried giving monkeys gradually increasing subcutaneous doses of the virulent virus from the brains of monkeys. Some developed immunity to the disease but others became infected with poliomyelitis.

Landsteinr and Levaditi, at about the some time, utilized the Pasteur method developed for the attenuation of the rabies virus and with some success; but here, also, a few monkeys developed poliomyelitis.

In 1911, we tried, in the Health Department laboratory, a modified Pasteur method. The virus in the first and second injections was heated for thirty minutes at 55°C, the virus for the third injection was heated at 75°C, that for the fourth at 37°C, and the fifth left unheated.

We treated eight monkeys and all withstood the vaccine safely. When their immunity was tested, five resisted infection from brain injections of virulent virus and three, while moderately resistant, finally developed poliomyelitis. The serum of each, protected monkeys when it was mixed with a multiple fatal dose of the active virus and given intracerebrally. Fearing that this might not be absolutely safe, we tried the Semple method which we now use for the Pasteur treatment. The virus was heated to 55° C/131F, for thirty minutes and to each monkey injections were given. One-third of the treated monkeys were protected against the brain injection. Their serum neutralized the virus. The serum of the others was more or less weak in antibodies as shown by only delaying the illness. This vaccine, however, is absolutely safe and could be given to children where parents are greatly worried about possible infection of their children.

PRESENT STATUS OF PNEUMOPERITONEUM AS AN AID IN THE RADIOLOGICAL DIAGNOSIS OF ABDOMINAL LESIONS. *

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Presented before the Clinical Congress of the Medical and Surgical Association of the Southwest, at their Annual Meeting, in El Paso, Texas, Nov. 2 to 5, 1927.

The introduction of air into the abdominal cavity as an aid in the radiological examination of the intra-abdominal organs is now a well established procedure. Immediately following its introduction into this country by Stein and Stewart[1], of New York, it was taken up with great enthusiasm and comprehensive studies were made of its various aspects; chiefly by Orndorff,[2] Alvarez,[3] Van Zwaluwenburg and Pedersen,[4] Tierney,[5] Case[6] and Rubin.[7] The method of examination was just becoming firmly established when Case[6] (1921), after an exhaustive study from many sources, related certain dangers connected with the method and collected from the literature reports of four deaths as directly attributable to the induction of pneumoperitoneum. All were from air embolism. As a result of this adverse criticism, enthusiasm waned and this valuable method of diagnosis suffered a severe set-back.

During the past eight years we have performed pneumoperitoneum on well over 1000 patients for x-ray examination, without any untoward or serious complication. With the exception of those performed by the radiologist or his assistant, not more than three were performed by any one interne, which would indicate that the procedure as carried out is relatively safe. We regard the method as safer than thoracentesis and feel that an analysis of a large number of thoracentesis operations would net a greater number of accidents than as many instances of pneumoperitoneum.

Proper care in the introduction of air is, of course, necessary. We have developed a very simple apparatus* and have outlined a simple technic for the introduction of pneumoperitoneum which has given uniform satisfaction.[8] The evening before the examination the patient should receive a cathartic, preferably castor oil; the next morning the bowels should be thoroughly cleansed with an S.S. enema. Only a light breakfast should be allowed and, about twenty to thirty minutes before examination, the patient should be caused to void, or should be catheterized, and one-sixth grain of morphine should be administered hypodermically. The operator should scrub with soap and running water for fifteen minutes and should make the same preparation as is customary for a laparotomy. The apparatus consists of an air pump—similar to the pump of a Potain aspirator—attached by suitable rubber tubing and metal connectors to a lumbar puncture needle with a glass trap interposed to prevent the introduction of oil or any foreign

*From the Radiology Department of St. Mary's Hospital and St. Louis City Hospitals.

*This simple apparatus here described may be readily assembled or may be had from Becton-Dickinson and Co.

material from the pump. The needle and connecting apparatus should be boiled; the pump need not be sterilized.

A point in the left lower quadrant of the abdomen, one inch to the left and one inch below the umbilicus, is selected for introduction of the needle, since at this point there is less danger of injury to underlying structures. Before introducing the needle, palpate to exclude the presence of any mass or unusual pulsation in this location. The first step is to introduce the needle through the skin; second, with the index finger on the hilt, and the needle perpendicular to the abdominal wall, exert firm but steady pressure until the structures give way before the point; this impulse is usually felt twice, once as the needle traverses the fascia and again as it pierces the peritoneum. Remove the stilet and wait for a few moments to be sure that no blood exudes from the needle; never manipulate the needle in the abdominal cavity without the stilet in place. Connect the pump and proceed with inflation. If the needle is in the abdominal cavity, the inrush of air with each stroke of the pump will be heard through a stethoscope at some remote portion of the abdomen. If this sound is heard, certain that you are not in, and the stilet should be reinserted and the procedure tried again. The insertion of a few pumps of air into the subcutaneous tissues never does any damage since the air is absorbed within a few days. Inflation is continued under fluoroscopic vision and is carried to a point where the anterior abdominal wall lifts away from the underlying abdominal organs. When the proper degree of distention is acquired, the needle is withdrawn and the examination proceeded with. The air, being lighter than the abdominal organs, rises to the top; therefore any organ to be examined must be uppermost so that it will be enveloped by air in order that its outline can be seen.

It is necessary, therefore to place the patient in many positions in order to examine all of the abdominal organs.[9] Lying on his back, the ray traversing his body from side to side will show clearly any adhesions between the abdominal wall and underlying structures; rolled up on his side, will show clearly the right kidney and liver, on the right side and the left kidney and spleen at the left; the prone position with pressure on the abdomen pushes the air out about all of the abdominal organs and gives a general view of all abdominal viscera, disclosing the pelvic organs when directed at the proper angle; side to side examination with the patient lying on his face, thighs and chest supported by blocks which allow the abdomen to sag suspended between them, gives a clear view of the retraperitoneal structures and determines the retroperitoneal origin of a mass.[5]

Pneumoperitoneum, like all other methods of examination, was at first hailed as an agent capable of making a diagnosis in all types of abdominal pathology. Like all other new methods, it was soon found to have definite indication and likewise definite limitations. We feel that the principal uses of the method may be briefly summarized as follows:

1. To determine the presence, position, size and outline, mobility or attachments of any abdominal organ.[3,5,9]

At times it is desired to determine the actual presence of an organ; kidney, for instance. The position of an organ may be in question; for instance, the spleen has been found dislocated in the pelvis giving rise to an erroneous diagnosis of tumor. The size and outline of an organ may give some clue to the underlying pathology; the nodular appearance of the liver border or of kidney is usually indicative of new growth; irregular fibrotic appearance of the spleen occurs in tuberculosis, etc. The mobility may at times be judged by this examination; mobility of a kidney may be directly visualized. Attachments of an organ, either normal or those due to adhesions, are usually made out.

2. To determine the presence, position, size or outline, mobility and attachment, of any abdominal mass.[3,5,9]

It is often very important to the surgeon to have some indication of the origin and character of a tumor before operation. Often this knowledge has proven especially efficacious in determining the retroperitoneal character of a mass.

3. The detection of adhesions. Pneumoperitoneum is the only method by which adhesions, post-operative, inflammatory or from whatever cause, can be detected, unless they cause obstruction.[3,5,9]

4. For outlining the diaphraghm and exploring the subdiaphragmatic space.[9] This method has been found very useful in detecting sub-diaphragmatic abscess or adhesion of the liver or spleen to the diaphragm. It is equally efficacious in outlining the diaphragm and should give the deciding information in diagnosis of diaphragmatic hernia or eventration of the diaphragm.

5. Pleumoperitoneum examination of the pelvic organs has been developed to a high degree by many gynecological clinics [7], and has proven a most beneficial adjunct to the other existing methods of diagnosis.

While pneumoperitoneum has proven of some value in the diagnosis of lesions of the gastro-intestinal tract[8] in certain selected cases, it has in no way displaced the ordinary established methods of examination by barium meal. It is of little value in demonstrating tumors in the upper abdominal quadrants—those of the stomach and pancreas, for instance. Its usefulness in diagnosis of gall-bladder disease has given place to the much more exact method of Graham after intravenous injection of tetraiodophenolphthalein. It is of little value in urinary tract diagnosis",[9] other than to show tumors of the kidney or to establish the relationship of a mass to the kidney. It will not disclose diseases of the kidney pelvis or bladder with the same degree of accuracy as the methods of pyelography and cystography after injection of opaque material—methods now in general use.

Fig. 2. Pneumoperitoneum will show adhesions between the abdominal wall and the underlying viscera, whether from infection, post-operative or malignant. Such adhesions cannot be demonstrated by any other means. In this instance the patient is lying on his back and is viewed from side to side. The anterior abdominal wall is lifted away from the underlying viscera; adhesions between the intestines and a post-operative abdominal scar are clearly shown.

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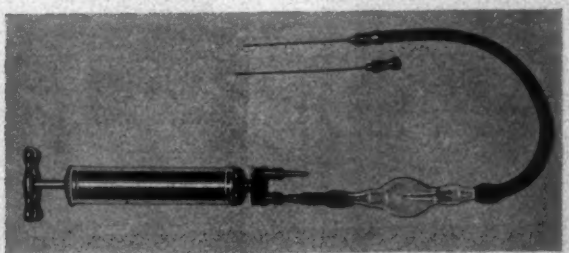

Fig. 1. Apparatus used for production of pneumoperitoneum. An ordinary lumbar puncture needle fitted to the pump of a Potain aspirator by suitable rubber tubing and connectors, with a rectal drip tube interposed as a trap (vent-hole plugged). This apparatus is a somewhat more compact and simpler form, is manufactured by Becton-Dickinson and Co.

Fig. 3. To show the spleen and left kidney, the patient must be rolled upon the right side with the left side uppermost. The air rises to the top and envelopes the spleen and shows the subdiaphragmatic space. In this instanc ethe spleen is greatly anlarged and is adherent to the diaphragmatic surface. Pneumoperitoneum should always be performed to asceratin whether such a condition exists, before the operation for splenectomy is undertaken.

Fig. 5. If the liver is the site of carcinoma, the irregular nodules show distinctly on the liver outline. Position same as fig. 4.

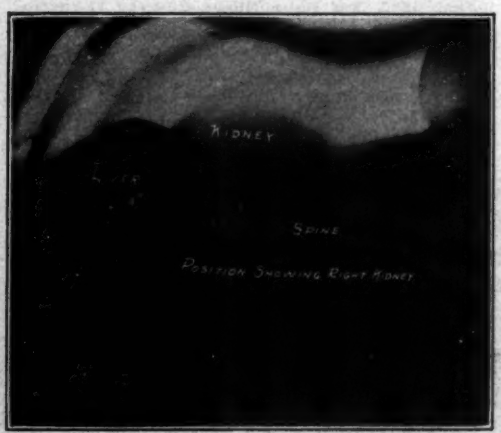

Fig. 4. In order to show the liver and right kidney, the patient must be rolled upon his left side. The right side, being uppermost, is enveloped by air. The liver drops downward to the middle, giving a clear view of the right kidney. In this instance both liver and kidney are normal.

Fig. 6. Marked enlargement of the spleen from septicemia.

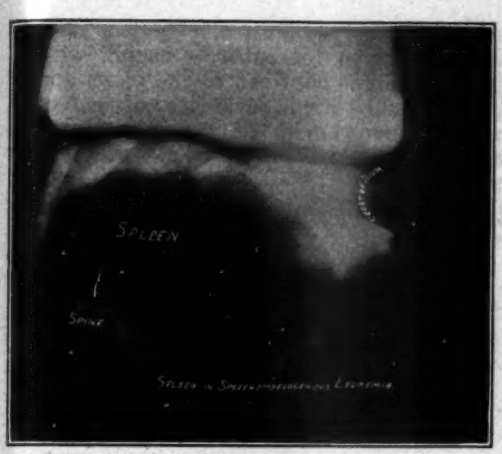

Fig. 7. Splenomegaly from splenomyelogenous leukemia.

Fig. 9. The anteroposterior view gives a good idea of the relationship of the various organs to each other and to any mass which may be present. Nothing abnormal is noted in this instance.

Fig. 8. The retroperitoneal space can be investigated by placing the patient in the retroperitoneal position—lying on abdomen, chest and thighs supported by two blocks which permit the abdomen to hang loosely. In this position the stomach, intestines and all organs with mesenteric attachment, drop forward to the abdominal wall, leaving the retroperitoneal space clearly visible and creating a "prevertebral clear space" which makes any pathological process clearly visible. In this instance no pathology is present.

Fig. 10. This method may be used to great advantage in ascertaining the contents of abdominal hernias. In this instance, the stomach was also inflated with gas so that its outline could be clearly made out. It will be seen that the pyloric end of the stomach extended into the hernial sac.

DIFFERENTIATION OF TUBERCULOSIS AND BRONCHIECTASIS

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Read at the twelfth Annual Meeting of the Medical & Surgical Association of the Southwest, held at Tucson, Ariz., November, 1926.)

It should be unnecessary to discuss this subject, but it is a common observation in the experience of any clinician who sees many patients with lung disease, that bronchiectasis is still being diagnosed tuberculosis with almost inexcusable frequency. Inasmuch as the treatments of the two conditions are very different, differentiation is a matter of considerable importance to the patient, and justifies any time and effort that may be demanded of us. The tuberculous patient requires bed rest, in the expectation of arresting activity, this to be followed by carefully graduated building regime. The bronchiectatic patient, on the contrary, may be allowed, if he does not actually require, physical activity. In many other respects the treatment of the two conditions will differ.

Even though the clinical history, the physical signs, the x-ray appearances and the laboratory findings are all quite different in the two conditions, when they exist in uncomplicated form, yet careful analysis of any considerable group of supposedly tuberculous patients will find a few who have uncomplicated bronchiectasis, and more who have bronchiectasis as the chief pathological factor along with tuberculosis as a minor factor.

These errors are due to superficiality in history taking, in examination, or wrongful interpretation of physical signs or radiographic evidence. In many tuberculous lungs, of course, bronchiectatic changes develop, as the fibrosis of the tuberculous infection produces the cylindrical enlargement of bronchi or saccular lesions of bronchiectasis. Here it becomes a matter of fine clinical judgment to determine which factor is the more important and treat the patient accordingly.

The object of this paper is to recall to mind the pathology of bronchiectasis in its different stages, and to illustrate the value of iodized oil injections in the x-ray study of these changes.

When a patient gives a history of whooping-cough or pneumonia, with chronic cough and expectoration persisting through the years following, but with maintenance of good general health, weight and strength, tuberculosis should not be the first thought; certainly, bronchiectasis must be excluded on such a history. With the sputum persistently negative for tubercle bacilli, with the physical signs confined to the bases and with the radiographic evidence of parenchymatous involvement of the upper lobes lacking, tuberculosis is, for all practical purposes ruled out.

It must be remembered that cough and expectoration do not need to be continuous in bronchiectasis. Bronchiectatic patients may have long periods of entire freedom from symptoms, so that the clinician is frequently misled by the history of a patient who states that he had a cough a year ago, but it disappeared and has recently returned following an acute respiratory infection. Also, absence of free expectoration at the time of examination does not exclude bronchiectasis. In the various manifestations of the bronchiectatic infection, the patient may have hemoptysis, dyspnea, fever, loss of weight, and the symptoms usually shown by the tuberculous individual. So, in many cases, the accessory methods of diagnosis become of undoubted value.

Until recently the radiographic evidences have been unsatisfactory in determining the presence or absence of bronchiectasis. Dr. A. B. Moore of the Mayo Clinic, has made extensive studies in the x-ray findings in bronchiectasis and radiologists generally have followed his interpretations. However, in 1924, reports began to appear in the foreign literature about the use of iodized oil injected into the bronchi as a means of definitely delineating the bronchiectatic lesions. This was not the first report on the use of opaque substances in diagnosing lung lesions, but it is the first method which has become at all popular. Armand de Lille and co-workers reported the use of lipiodol in the latter part of 1923, and made several other reports during 1924, one of these being in American literature. The first use of the method in Arizona, so far as reported, was by Dr. R. J. Callander of Tucson, who read a paper at the Arizona State Medical Association, in April, 1925, with several illustrative cases in whom iodized oil had been used in diagnosing bronchiectasis. Dr. Callander used the intra-tracheal method, which requires the assistance of a laryngologist. The technic has been much simplified by the introduction of the supraglottic method, the chief exponent of which is Dr. Stuart Pritchard, of Battle Creek, who has used it on hundreds of cases. The supraglottic method of introducing iodized oil into the bronchial tree is absurdly simple and causes surprisingly little disturbance. Its technic has been described by Dr. Pritchard in several publications, but may be

briefly repeated here for the sake of those who do not recall it:

With the patient sitting and leaning slightly toward the side to be injected, the tongue is held forward by the patient. The throat is anesthetized with cocaine or butyn (two per cent solution), going over any portion of the throat which is likely to be touched by the nozzle of injecting syringe, paying special attention to the anterior pillars, the uvula and the lingual tonsil region; a final application is made to the epiglottis and larynx by using a curved nozzle attached to a small syringe and, while the patient is inhaling, injecting a sudden spray of about one c.c into the larynx. After a few minutes' wait, the iodized oil can be introduced by allowing it to flow out of the tip of a curved nozzle attached to a thirty c.c. syringe. If the tip of nozzle is introduced past the root of the tongue, and the patient is instructed to continue breathing and not to swallow, the epiglottis will remain open and the esophagus closed. Gravity will direct the oil into the larynx and into the most dependent bronchus. About forty-five seconds is usually required to introduce twenty c.c. of oil, which is sufficient to outline the lower bronchial tree of one lung. If it is desired to outline the bronchial tree of the other lung, an additional twenty c. c. may be immediately introduced into the other side, by having the patient lean slightly in the opposite direction.

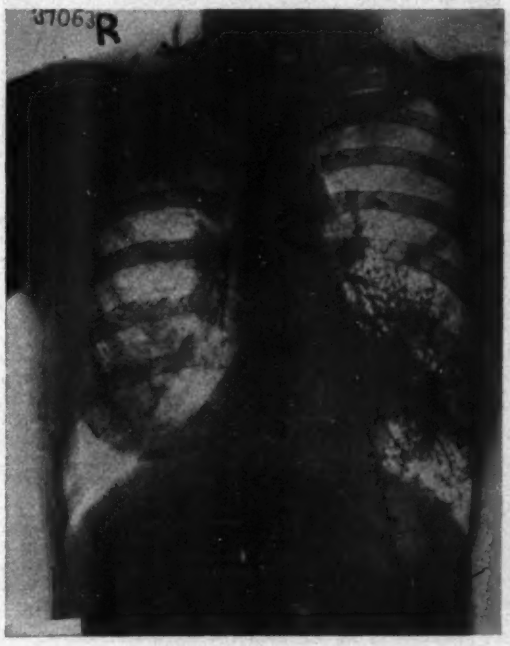
Practically the only difficulty encountered is in the psychic reaction of a patient who is convinced that he is going to gag or cough. By a little persuasion and by touching the anesthetized throat to convince him that this may be done without producing a tendency to cough or gag, nine patients out of ten will take the oil without coughing, gagging or swallowing, and will control the cough, after the oil is introduced, until fluoroscopic and radiographic work is finished.

Normal Bronchial Tree

Figure 1. (Ref. by Dr. H. K. Beauchamp.) Suspected of having bronchiectasis or lung abscess on the right side. This is an oblique view after injection of 20 c.c. lipiodol which entered both sides. The bronchi show the normal tapering outlines. The tracheal rings are shown, which is unusual.

There are three stages in the development of bronchiectasis. The characteristic x-ray densities of these three types, as shown by the plain radiographs, have been described by Dr. Moore. We desire, here, by using illustrative patients in whom the bronchial trees are outlined with lipiodol, to review these three stages of bronchiectasis, and show the value of this relatively new method of diagnosis.

In Fig. 1 is shown outline of the trachea and larger bronchi. The normal difference in the angles of the bronchi is well shown. It will be noted that the bronchi gradually taper in size as they subdivide, until they disappear into the alveoli, some of the latter being outlined on the left side. This is considered to be a normal bronchial tree in size and distribution.



Nearly Normal, with Possible Early Changes.

Figure 2. (Ref. by Dr. R. W. Eaton.) Married woman, with history of lung infection complicated by hay fever. Physical signs of old fibrous tuberculosis in upper right lobe. Suspected of having bronchiectasis on the left side. Lipiodol injection Sept. 26, 1926, 20 c. c. into left side, outlining the lower bronchial tree. The alveolar structure is shown to a slightly more than normal degree, with a suggestion of sacculation at (a).

Subsequent attempt to outline the upper bronchial tree on the right side was not successful. The process there is probably an old fibro-cavernous tuberculosis.

In Figure 2 is shown another practically normal lower left bronchus and distribution. The alveolar structure is more thoroughly outlined than in Figure 1. The facility with which the alveolar structure is outlined probably indicates an abnormal degree of relaxation in the brochioles. At (a) are some small dilatations. The bronchi, however, show the normal appearance of gradual tapering as they subdivide as compared with the appearances to be seen in clinical bronchiectasis.

Early Linear Bronchiectasis.

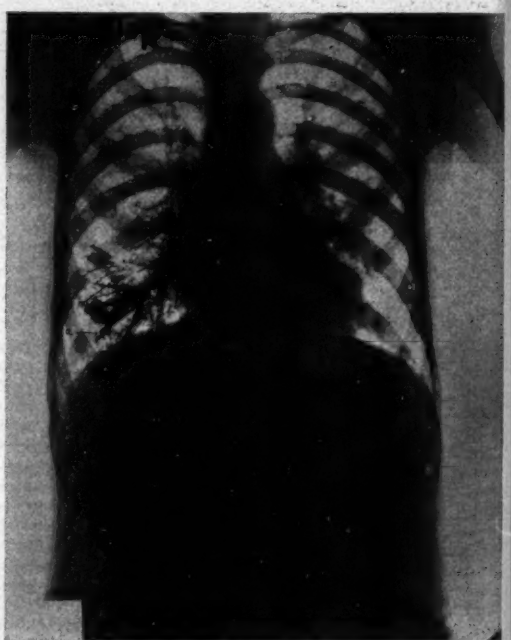
Figure 3. (Drs. Holmes and Randolph.) W. G. C., carpenter, age 55, resident of Arizona for twenty-five years. Has had asthma from infancy, except during a period of three or four years when he secured relief by taking an "asthma cure." Caught cold in January, 1926, and is now having cough with about one ounce of expectoration a day. Radiographic examiantion in 1925 showed fibrous changes suggesting bronchiectasis.

Lipiodol injection June 16, 1926 (by Dr. Stuart Pritchard) in Phoenix outlined the lower right bronchial tree. Changes are not marked and are to be classed as belonging to the linear type of bronchiectasis, seen in typical form at (a) and (b).

Subsequent injection of the left side showed similar changes on the lower left lobe.

The first stage of bronchiectasis is the **infiltrative type,** in which there is infection along the bronchi, with some infiltration of the adjacent lung tissue. It is called the **linear type** by Moore, because of the linear shadows on the plain radiograph. In this stage, when the bronchi are outlined with lipiodol, it will be seen that instead of tapering as in the normal picture, certain of the bronchial subdivisions will show the same size as, or even larger size than, the parent stem from which they spring as shown at (a) in Figure 3. This condition may be general throughout the distribution of a bronchial tree, or may be localized to small areas, as in (a) of Figure 4.

As the pathologic procession advances, the bronchial branches become more dilated. If this dilatation is widespread along the bronchi, the development is into the **cylindrical type.** In Figure 5 this is quite well shown, the bronchi of the left side, only partly outlined, show uniformity in size over a distance of two or three inches, the cylindrical dilatation terminating bluntly.

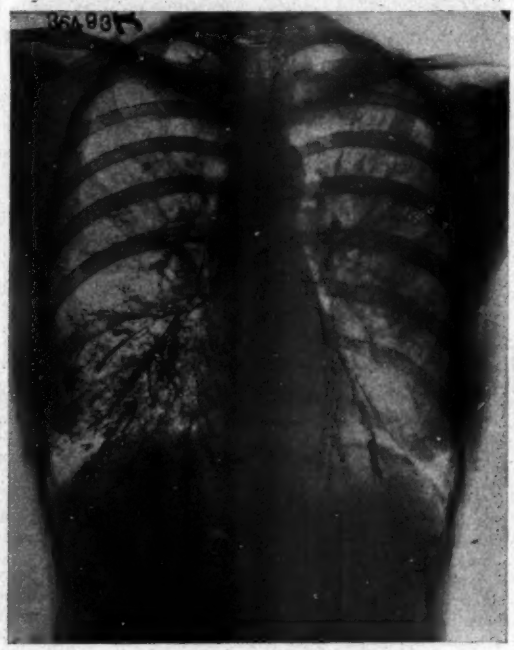


Linear Bronchiectasis, Changing into Cylindrical.

Figure 4. (Ref. Dr. G. E. Goodrich.) Boy, age 14, with history of chronic cough and expectoration since 1921. Plain radiograph Aug. 3, 1927, suggested bronchiectasis. On Aug. 26th the left lower bronchus was injected with iodipin showing beginning sacculations on the terminal bronchi. On Sept. 10th, injection of the lower right bronchus was made, as above, showing localized lesions at (a) and (b), of the linear type verging upon the cylindrical and saccular.

On the right side the dilatations are far out along the smaller branches of the bronchi. This illustration shows the linear type just emerging into the cylindrical type. In Figure 6, the cylindrical type is shown well developed on the left side, with the linear type persisting on the right side.

The saccular type, or third stage of Moore,



Linear Bronchiectasis, changing into Cylindrical

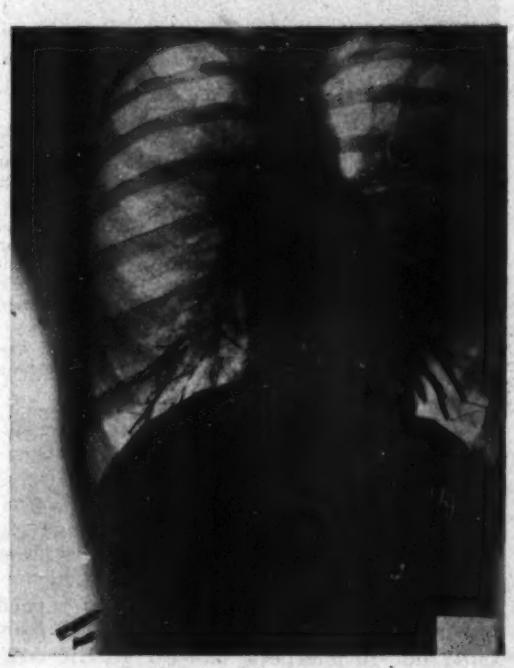
Figure 5. (Drs. Holmes and Randolph). Married woman, age 25, has had chronic cough since she had measles at age of eight. Is fairly well nourished and in good strength. Since birth of child two years ago, cough has been worse. Has been examined for tuberculosis by physician in Texas, who states that she has bronchiectasis. After this observation was made, patient developed pneumonia in February, 1925, which had not entirely subsided in March, at which time radiograph showed evidence of unresolved pneumonia on the right. Patient went to Texas and returned to Phoenix early in 1926, much improved.

Injection of Iipiodol Aug. 5, 1926, outlined the lower right bronchi of the right side and partially outlined those on the left. The distal branches of the right bronchus show linear dilatations merging into the cylindrical. Similar condition exists on the left.

may develop upon the cylindrical, as a further stage, or the sacculations may develop from localized areas of damage to the bronchi, comparable to the development of saccular aneurism. In Figure 7, the sacculations are shown developing chiefly by further distension of cylindrical bronchiectasis, confined chiefly to the left lower bronchus, but showing also some changes in the posterior branch of the lower right bronchus. In Figure 8, an advanced saccular type, the areas are numerous but each is evidently a localized area of distension. Some cylindrical dilatations are shown, but the pathologic picture is chiefly that of the saccular type.

CONCLUSION

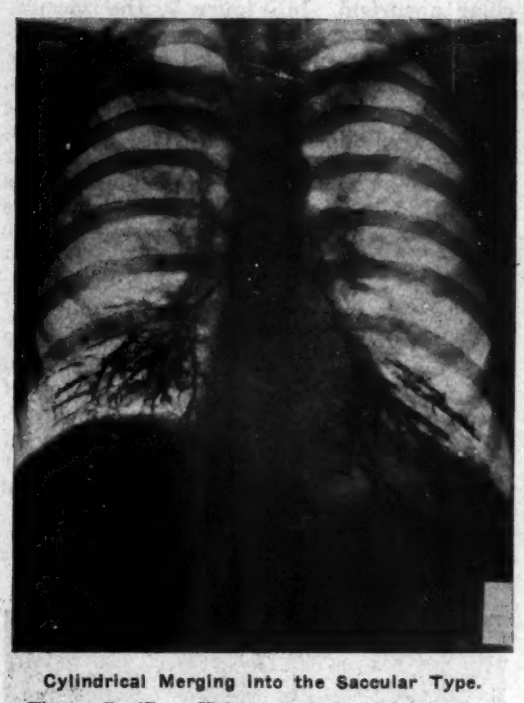
The presence of bronchiectasis, the stage of the disease, the location of distended bronchi or sacculations, and the extent of the involvement can be readily and easily determined by the supraglottic injection of iolized oil. Such determination is of great value in planning the mechanical, medical or surgical treatment of bronchiectasis.



Cylindrical Bronchiectasis.

Figure 6. (Drs. Holmes and Randolph.) Miss S., age 17. Had double pneumonia, with sinus infection since.

Lipiodol injection in July, 1926, outlining both bronchial trees fairly well. On the left side there are typical cylindrical dilatations of the bronchial divisions of the posterior branch. The typical blunt terminations of the dilated segments are well shown at (a). On the right side the changes are not so advanced, being in the linear class, (b).



Cylindrical Merging into the Saccular Type.

Figure 7. (Drs. Holmes and Randolph.) S. M., age 27, mechanic. Had pneumonia in 1920 and has been expectorating freely since. Lipiodol injected in July, 1926, outlining the lower bronchi on each side satisfactorily.

The changes are most marked on the left side, chiefly in the distal branches of the posterior bronchi. The pathology is that of cylindrical dilatations with sacculations developing. Note how the involved area would be entirely hidden by the heart shadow in the ordinary radiograph.

On the right side, the changes are still in the linear and cylindrical stage with small sacculations at (a).

Saccular Bronchiectasis.

Figure 8. (Drs. Holmes and Randolph). G. L. C., age 22. Has had measles, whooping cough, tonsillitis, influenza. Has been coughing since eight years of age, with large amount of sputum all the time; expectorates about eight ounces a day at present. Stopped work six months ago. Has shortness of breath and pain in chest. Sputum repeatedly negative for tubercle bacilli.

Lipiodol injected in July, 1926, outlined the lower bronchial divisions on both sides. On the right side will be seen the typical irregular, saccular pockets of this stage of the disease. On the left side, sacculations can be seen developing along the course of cylindrically distended bronchi, with terminal pockets.

MATERNAL MORTALITY

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Phoenix, Arizona

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From all sides attention is being turned toward the question of our maternal mortality due to puerperal causes. In the larger medical centers it is more than a frequent topic of discussion, linking with it the hope that the increasing practice of obstetrics as a specialty will materially lower this loss of life. The means of accomplishing this end must lie in this direction, as, with the progress of scientific medicine and the ability of the general practitioner to handle disease, the death rate from pregnancy has not materially decreased. What the hazard of childbirth has been in centuries gone by, we can only guess. In spite of the blaming of civilization for the pathological trend of pregnancy, the reading of ancient medical literature informs us of the frequency of serious trouble and the dread of the obstetricians of that day as they went to attend such a case with the crude methods then known. Today, with the practice of medicine rating high among the sciences, but few of the dangers besetting the pregnant woman have been obviated.

From our individual experiences as practicing physicians, we do not secure an accurate impression of the number of women who die yearly from puerperal causes. Vital statistics, instead, are necessary to show us the magnitude of the problem we face. It is fully realized that statistics improperly handled are dangerous in that they lead to false conclusions. However, the United States Department of Labor, through the Children's Bureau, several years ago pre-

sented for our consideration an estimated yearly loss of well over 18,000 mothers, which is at least conservative, if not accurate.

It seems necessary to estimate this because, as late as 1921, the death registration area included only 82.2 per cent of the total population of the United States. More definite figures have been made recently, but have not yet become the basis of much literature. It seems that the accumulation of necessary data, the ascertaining of its reliability, and its application to conclusive statistics, is a tremendous and tedious undertaking. Those who have made possible these estimates have had to correct for many sources of error in the form of incomplete registration of deaths, faulty certification of causes, incomplete registration of births, a presumed lowering of the birth rate, etc. The literature is complicated by charts and graphs, discussions of causes of deaths, periodical peaks of high and low mortality, the factors of nativity, age, social, climatic, rural or urban conditions; the mortality and morbidity rates are expressed as per thousand population, in different percentages, and with all the numerous detail which results from intensive delving into statistics. These details only bring about confusion and error and will not be recorded here. Adair has recently surveyed the sources of error in the 1921 report, and estimates a yearly death toll of more than 20,000. De Lee places it at 25,000. That these figures mean something is evident when we hear that probably no disease except tuberculosis has a greater toll among the women of child-bearing age.

Much of the recent literature on this subject is dealing with the question in terms of maternal mortality per thousand live births. From a consideration of the birth and death registration systems throughout the country, it seems that this is a rather comprehensive method of expression. Comparative figures are more easily arrived at, the chances of error are not so great, and, if errors are made, the tendency is to put the death rate at a lower absolute level than it really is. This is not important, as the most conservative figures should cause us serious concern.

From Woodbury's report, we learn that the mortality rates in the United States are at this time among the highest in the civilized world. After compensating for all the known sources of error, there seems to have been a very slight downward trend in the last twenty-five years. The maternal mortality rate of 1921 was 6.8 per thousand live births. In comparison with this rate there have been cited the rates of eighteen foreign countries which were all lower than ours. Denmark has a rate as low as 2.4; Sweden, 2.5; Italy and Norway, 3.0; England and Wales, 3.9. A few nations approach us with a rate of 5.7 for France, and 6.2 for Scotland. At the end of this disappointing comparison has been printed the startling statement, "18,000 of our mothers died in childbirth in 1921. Most of them could have been saved. Why weren't they?"

It is shown that approximately two-fifths of the deaths are due to puerperal septicemia, due to infection through faulty aseptic technic. It is worthy of consideration that, because of the cases of infectious nature that we must see from time to time in general practice, we may be carriers of infection. There are instances in which autoinfection undoubtedly takes place—an old salpingitis, or other focus of infection, proving the undoing of our most strict precautions. Authorities consider, however, that sepsis is almost one hundred per cent preventable. One-fourth of the deaths are due to the toxemias and can be very greatly diminished by proper care during pregnancy and at delivery. Improper management and instrumentation, the accidents of pregnancy and the accidents of labor—not forgetting hemorrhage in both periods—are responsible for the most of the rest.

No attempt has been made to fix the blame, and it would not accomplish the desired result if done. It behooves us, however, to critically survey all factors which perpetuate this loss of mothers. The public itself, through ignorance of all things medical, retains the all too prevalent idea that, since Nature has provided this method of reproduction, it must be free from all imperfections and dangers. It was until recently that we had with us the belief that travail and suffering were the heritage of woman and that efforts to relieve her were rank heresy. Even in this modern era, a considerable portion of the laity feels that the elderly woman next door who has several grown children, or the neighborhood mid-wife, irrespective of qualification or license, is plenty good enough to be in sole attendance during labor.

The mid-wife has been challenged and there is a tendency to slip the burden onto her shoulders. Investigators, however, have reported that the mid-wife, at least in districts where she is carefully licensed and supervised, is not responsible for the high mortality. In these studies, all fatal cases are included in which a mid-wife was at any time in attendance. Levy cites definite instances in cities and counties in which the

percentage of births by mid-wives decreased while at the same time the maternal mortality rate increased. It is interesting to note in this report that in Pittsburgh there was an increase in births attended by mid-wives, with an accompanying decrease in the mortality rate. An analysis of the cities of New Jersey shows that the lowest maternal mortalty rate is in that city with the highest percentage of births attended by mid-wives. The highest mortality rate is in the city with the second lowest percentage of births attended by mid-wives. Eichel, in a preliminary note on studies being made in the Vital Statistics Division, New York, also defends the work of the mid-wife. He cites as reasons for the low fatality in the practice of a New York mid-wife, the following: First, many of them, if not the majority, obtained their obstetrical training abroad at a time when it was superior to that obtained by the average American medical student, and some have had a training possibly better than that obtained by any medical student today. Secondly, she attends only normal cases, quickly recognizes abnormal conditions and promptly calls a physician who is, usually, a good obstetrician. Thirdly, she is clean and interferes as little as possible with Nature's own mechanism of delivery. Lastly, she endeavors to obey the state law and regulations, violations of which would subject her to both cancellation of her license and prosecution, either of which might befall her far more readily than it would the physician, who has the prestige of his profession and public opinion to support him. Hence, if we investigate the work of the mid-wife, it seems that it should be to find an explanation for her lower mortality rate.

One writer has already charged the medical profession with "meddling obstetrics" and cites it as a probable cause for our high mortality rate. This does not mean operative obstetrics when indicated in the pathology and accidents of labor and done by skilled men. Statistics from Norway and Germany have shown a lowered maternal mortality rate since the increase of operative obstetrics done under the above conditions by the highly trained obstetrician. If we take pride in our profession and are to feel that we are not helpless, but have definitely advanced from the mid-wifery of past centuries, this thought should cheer us. However, if we are to treat obstetrical pathology actively, let us be sure that we have the proper judgment, knowledge and skill.

It is an accepted fact that much of our maternal mortality could be prevented. This paper is not intended to be didactic in nature or it would assume textbook proportions. The necessary detail is readily found in the works of several authors, and in the periodical publications dealing especially with this phase of medicine. This is seldom sufficient, it is true, to help us in times of dire need. Briefly, there is nothing that will easily take the place of active post-graduate experience in a maternity hospital under competent supervision. The young obstetrician can feel that he at least has a good start toward the successful practice of his specialty. It is true that such post-graduate training is not available to all physicians. To make the need for it less, more attention should be paid to the undergraduate student and obstetrics be given its rightful position of importance on the curriculum of all medical schools. Further, the general hospital employing the interne should still consider him as a student and see that he is carefully directed, both in judgment and technic, during the short time that he is usually able to spend in the obstetrical service.

We of the medical profession, by acting both as individuals and as an organization, can correct the situation as it has existed and as it still exists, to a great degree, today. A comment has been made recently to the effect that if progress is to be made in the attack on the death rate of women associated with child birth, there must be a revision of "the notorious disappreciation and disesteem of obstetrics" that exists at present. We should be active, not passive, in this movement which is gradually showing itself in the medical schools, our large hospitals and medical centers, public health offices, maternal welfare societies and other lay organizations, and which, in time, will stir the public mind to the knowledge that parturition can and must be made safer.

We are taught, but do not always accord sufficient importance to the fact, that puerperal septicemia, the greatest single factor in this morbidty and mortality, yields to the rigorous observance of asepsis. The Australian Committee, in its report, states: "Puerperal septicemia is probably the greatest reproach which any civilized nation can, by its own negligence, offer to itself. It can be prevented by a degree of care which is not excessive or meticulous, requiring only ordinary intelligence and some careful training." The success of aseptic procedures is shown by the experience of well conducted hospitals in which the mortality is low. In Australia, the Sydney Women's Hospital several years ago reported nearly 4,000 cases without a death from puerperal sep-

sis. Adair and Maland more recently reported 1,512 cases of pregnancy admitted to the Swedish Hospital in Minneapolis, without deaths from puerperal infection having occured. Among 11,605 confinements at the Chicago Lying-in Hospital, only five deaths occurred from puerperal sepsis, and, in all but one of these five cases, the delivery took place outside the hospital.

The exercise of judgment and skill before, during and after delivery is highly essential. Adequate prenatal care will reduce the incidence of death from the toxemias and the accidents of pregnancy. Careful examination of the patients before delivery will sometimes forewarn the attendant of impending difficulties and the accidents of labor can be prevented or more easily handled. Non-interference with Nature's mechanism of labor in normal cases, we know will reduce the hazard. However, even the normal pregnancy and labor presents the equivalent to the careful pre-operative care preceding the most severe of surgical operations, the asepsis, technical skill and judgment employed in the operating room and the post-operative care which follows. Quick recognition of present or impending pathology is imperative and the training and qualifications necessary to properly handle this pathology is an ideal attainment and should be more earnestly sought. If the solution can be briefly stated, then we must say that obstetrics must more and more be regarded as a highly specialized branch of surgery and must be appreciated and prepared for as such.

In conclusion, reliable statistics which are more illuminative than our own personal experiences and observations, show us that our maternal mortality is high in proportion to the progress of medical science. It is highly desirable that this situation be corrected. This should and can be done by the medical profession itself acting as individuals and as an organization. The proper valuation of obstetrics as a specialty is absolutely necessary. The training of the undergraduate student should be given much more attention. Graduate physicians who wish to do maternity work should avail themselves of every opportunity to study and do post-graduate work, as would be expected of them in the doing of major surgery or any other of the more exacting phases of medicine in which rapid progress is being made, as is now true in obstetrics. Education of the public as to the need for early, and most especially competent, care is one of the most important phases of the new movement, yet probably the most delicate and most difficult to bring about. The building of more maternity hospitals should be encouraged and the public should be taught that the expense of care in such an institution is not only justifiable but is of economic importance in the preservation of health and life. The same can be said of well conducted obstetrical departments in general hospitals. Last, but not least, we should not be contented with what has already been done toward the safeguarding of the pregnant woman, but should constantly strive to eliminate the imperfections of our art which we know exist, so that, when the prospective mother applies to us for care, we shall not fail her.

Note: Since this paper was written, reports from the Child Hygiene Division show a maternal mortality rate of 7.018 per thousand live births in Arizona during 1926, a definite increase over the figure for 1925 which was 4.45. A detailed analysis of these figures has not yet been made.

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CLINIC ON CARDIORENAL DISEASE AND DIABETES

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(Held at Hotel Dieu, El Paso, Texas, as part of the Clinical Congress of the Medical and Surgical Association of the Southwest, at their Annual Meeting, November 2 to 5, 1927).

CASE I.

Soldier, colored. Violent diabetes. Had some indefinite feelings of illness, especially mornings. In January, 1927, began to feel badly. In February had carbuncle on chin. At this time found sugar in uring. Was placed in hospital on low carbohydrate diet, which controlled sugar. Had incidental in urine. Was placed in hospital on low carbohy- 169 lbs.

This man evidently ran down in weight from sugar, in the first place, and then, under treatment he was reduced by a few pounds more. Even with this loss in weight, the patient says he feels better. That is, he felt weaker when he was weighing 173 pounds, with sugar, than he does now without sugar. The blood sugar in this case was 191 to start; during the test he went as high as 440, after three hours it was still 330. The last test was made Feb-

ruary 28th, when it was 171. The urine shows either sugar-free or a trace. Other examinations appear to be negative. Teeth and other foci of infection, negative. There is some recession of gums reported, which comes in diabetes.

His diet is an unweighed one, simply low in carbohydrates. He has learned to restrict this himself, his doctor states. If the patient is careful, and if he controls his weight satisfactorily, he may get along well indefinitely on this sort of a diet. The patient states that he finds improvement when exercising, which is right.

CASE II.

Girl, 9 yrs. No family history of diabetes. Child in good health. Pneumonia at 5. In September or October of 1926, the parents noticed that she got up at night to urinate. In January the urine showed sugar. January 13, 1927, treatment started —height 51 inches, weight 56 lbs. Diet: 40 grams carbohydrates, 65 protein, 90 fat; making 1230 calories. Insulin was begun, 9 and 4, increased to 9 and 7. Became sugar-free and diet increased to 43 carbohydrates, 72 protein, 132.5 fat, total of 1652 calories; insulin 10 in morning and 10 in evening. On January 28th, blood sugar 120 mg. During next few months she gained slowly in weight. Aug. 1st, weight 61 lbs. Sept. 6th, 60 lbs. Sept. 20th, weight 60½ lbs.; height 51¾ inches. Diet 62.5 carbohydrates, 74.7 protein, 137.5 fat. Weight at present is 63 lbs., indicating that she continues to do well.

This diabetes may possibly have started from pneumonia; there is no proof of that. It is unusually fortunate that a child of this age can be in such perfect condition on two doses of insulin a day. This is due to the fact that treatment was started before the case reached the critical stage. The earlier treatment starts, the better for the patient. The opportunity for such good results is lost if time is allowed to pass. A few years ago this case would have been classed as hopeless.

In regard to diet, I find no real advantage in figuring it down to exact grams. Two or three grams variation makes no real difference. Therefore, I find it more convenient to use round figures, and in a case like this would give 70 grams of carbohydrates and 80 grams of protein. That would be a little increase of protein and carbohydrates, which is good for a growing child, and a little more comfortable, and you will find it makes no particular difference if you keep anywhere near these quantities of protein and carbohydrates; there will never be accidents. What I am trying to get at is that I want to encourage as many doctors as possible to use the weighed diet, and therefore make it as simple as possible.

If everybody would get such good results in children, there would be no mortality. Her mother is trained to weigh her diet, and to make the urine test. If the child gets a cold or tonsillitis, or has an accident of any kind which upsets her tolerance, the first time sugar is found in the urine, steps can be taken to stop it.

Q. What is the prognosis in a case like this?

A. With care she should live as long as anyone.

Q. Is there a CURE for diabetes?

A. We have got to wait for further research before we can say that there is a positive cure for diabetes. There is no record of a complete cure in any patient, young or old. But, as I said before, it is not the fatal thing we used to think. It is now simply a matter of inconvenience, a nuisance in the matter of following a diet and taking insulin. There is very small chance for a patient of this kind to stop all treatment.

CASE III.

Female. Less than 40 years of age. No family history of diabetes. Health good. At 24 she weighed 120 pounds. Then she had typhoid, and while on limited diet following typhoid she began to put on weight. For 2 years she weighed 265 lbs. In 1925 she was found to have diabetes. She was treated but does not know if she became sugar-free. On Aug. 13th she developed acute cystitis, which is very common in these cases. Sugar was found as basis of it. On Aug. 14th she was put on a diet of 1139 calories. Insulin begun, 24 in morning, 16 in evening. Aug. 29: Urinary symptoms subsided. Weight 243 lbs. Sept. 6: Weight 235 lbs. Complained of weakness. Diet increased to 1489 calories, consisting of 67 carbohydrates, 65.6 protein, 106.5 fat; same insulin dosage. Remained sugar-free. Sept. 12: 241 lbs. No edema. Diet 69 carbohydrates, 65.6 protein, 86.5 fat. Same insulin dosage. Oct. 25: Weight 244 lbs. felt well. Sugar-free. Diet: 82 carbohydrates, 57.6 protein, and 50.5 fat, total of 1013 calories. Insulin dosage 24 and 16.

This patient does her housework, but finds it a little difficult to do much walking. We see some of these cases with actual bone changes due simply to obesity. They develop flat feet, pains in the ankles, calves and knee-joints.

With the history this patient gives, we may conclude that very likely granular trouble occurred with the typhoid. She states that she was put on a very light diet following the typhoid, but continued to gain weight.

Some people say they eat hardly anything and still they get fat. Others say they eat everything and stay thin. People just metabolize food differently. But in spite of all the gland deficiencies in the world, I tell all fat persons that they cannot become fat on air. If they deposit fat on the bones, they must get it from somewhere, and that can only be from the food they eat. They may have a greater tendency to become fat

than some people, but they eat material that makes them fat.

We guarantee to reduce every fat person; some are more difficult to reduce than others, but they can all be reduced. It can usually be done without serious hardship. The hardship comes in those cases who are remarkably hard to reduce and who are also very hungry. Some of these patients have, during all of their lives, eaten to excess, and if you cut them down perceptibly, they suffer from faintness, headaches, etc.

Now this patient does not complain of a ravenous appetite. Therefore it is easier to reduce her. One way in which this can be done is to cut down the fats in her diet. She would lose, as is shown by the loss of weight on some previous occasions. Her last diet shows 82 carbohydrates, 57.6 protein (that can be increased to 70 or if necessary to 80) and instead of 50.5 fat, she can be given a diet that is almost fat-free. I would gives a taste of grease. Things can be yolk, young chicken (especially the white meat,) most kinds of fish, since fish in general do not contain much fat, gelatin, cottage cheese made out of skimmed milk, and, for a change sometimes, any very lean kind of meat. Instead of the ordinary fat or grease, we use substitutes such as mineral oil, which is good for constipation, and gives a taste of grease. Things can be fried in it, and if you do not let burn, it will taste all right. Then add bran, either as a cereal or made up into cakes. The carbohydrates you can put in the form of gren vegetables, and when you have 80 grams of carbohydrates, and 70 or 80 grams of protein, that makes a very good diet. If you want dressings, you can make a very good one with mineral oil, a little egg and vinegar. There are all sorts of tricks like that to make a diet satisfactory. The patient will lose weight in this way. Perhaps she should exercise a little more than she does, outdoor walking is helpful.

If you wish to cut down weight most effectively, we introduce the salt-free diet. In the first place the patient is not so hungry on this diet. Then it has been found that many of these cases of stubborn obesity are accompanied by retention of water—more or less invisible edema. In Europe they have given strenuous diuretics and found they can produce a loss of ten pounds in weight in a day or two. I think that is not a very good thing to do. A salt-free diet I have found will often bring about a big loss of weight the first day or two, showing that part of the weight was due to retention of water. It may not be marked in this patient, because she does not complain of shortness of breath. With the edematous form there is usually shortness of breath.

There is no harm in trying a certain amount of thyroid. Do not be afraid of the diabetes. We have never hesitated to give thyroid to a diagetic patient who needed it.

This is a mild diabetes. Instead of 40 units of insulin, this patient ought to take less. After the weight has been reduced, it will be found that the insulin has dropped step by step until it gets down to zero, and by the time the weight is normal, she will actually have a high tolerance. She can then take a comfortable diet and be free of obesity as well as diabetes. If you get her cooperation, this result can be obtained.

Q. How much do you expect her to lose?

A. She probably had her best health when she weighed 120 pounds. With her height there is no reason why she should not get back to that again, if she wants to. I recall the case of a woman who weighed fully as much as this patient; she had been a dancer on the New York stage, naturally of a slim build. She could barely move around with two canes on account of joint changes, etc. We got her back to 120 pounds, but it took us a year to do it. There is no harm in reducing anybody, but you should not do it too rapidly.

Q. How rapidly can one reduce?

A. On a salt-free diet a patient will sometimes lose from five to ten pounds in one week, but that does not keep up. After that, if you can just keep up a steady loss of two pounds a week, and after a month or so, a positive loss of one pound per week, you will still be doing all right. There is no need to make the diet too weakening, nor to be hard on anybody. Of course, patients are different; some will come in and say: "I don't care how rough you are on me, I want to lose as much weight as I can." Others do not want to be too uncomfortable, and you cannot be too rigid with this latter type.

Q. How long would you advise keeping up thyroid?

A. I cannot say definitely; it may be kept up for long periods. Of course, if a patient shows any sign of rapid pulse, nervousness, etc., stop the thyroid immediately.

CASE IV.

Male. Soldier. Not much of importance in history. Noticed albumin and pus in urine on first examination in April, 1927. The next urine test a little later showed sugar, no pus, but some red blood cells. The red blood cells cleared up in a few days. Sugar persisted. Has persisted almost continuously, in fairly large quantities, ever since. Since then no more albumin, pus or blood—just sugar. Blood chemistry taken in typical manner is normal. Blood-sugar tolerance test June 24, 1927;

gave 95 grams glucose in 40 per cent solution, with the juice of a lemon to prevent nausea; 96 mg. sugar in blood on starting; inside frist nour 172; an hour later 215, then down to 116, then 95, then 55, then 43. Tris is low blood sugar. Urine collected at 9:20, before test; 6.5 grams sugar, when blood sugar was 96. Urine collected at 11:20 and bladder emptied at 1:35 at end of test, s d still contained 5 grams sugar. Part of the time he has been on regular diet, part of the time on somewhat restricted diet. Sugar constantly present in urine. Sugar in 24 hours, 30 odd grams per day.

Here is the question in this case: Is this diabetes or glycosuria? I would suggest a fermentation test to make sure of glucose, to give us a starting point. Then there are two things to decide.

First: Is this a glycosuria? That seems to be pretty well decided by these tests. For example, if the blood-sugar is low, and sugar is present in the urine, then we know this is a case of glycosuria. I note on the history here that on July 12th, a glucose tolerance test was made with 96 grams glucose, with blood-sugar before the test 104 mg., 135 mg. in one hour, and gradually going down again to 112 mg. Urine showed over 5 grams of sugar.

Second: Is this diabetes? In the second glucose tolerance test the blood-sugar is not high. In the first test there was one high figure, 215; if that can be verified then this is diabetes. It ought to be tested with particular care. We do not know why the two tests should be different, but a single test with 90 odd milligrams of glucose does not always prove the true condition. I could suggest that if he could take 200 grams glucose, it would be well to give it, and try to force the blood sugar as high as it will go. In a diabetic you can force it up. Put him on the highest possible carbohydrate feeding for one or several days. That means starch or sugar in every form —hot cakes, maple syrup, desserts. If you can force up the blood-sugar the case is at least mildly diabetic.

Of course, it is quite possible for any person to have two disorders; we see diabetes and kidney disease all the time, and diabetes and high blood pressure. Any of these can be combined, and we have records of combined diabetes and glycosuria. It is very hard to treat because you cannot get the urine sugar-free. You have to figure out how much sugar is due to the diabetes and how much to glycosuria.

With glycosuria there is sometimes more or less weakness. With severe diabetes plus glycosuria, the patient goes down hill rather fast. Incidentally these cases are very refractory to insulin. In a case of this type, very likely small doses of insulin would knock him right out.

Q. Do you have any difficulty with patients vomiting when giving glucose?

A. Glucose can only be given to the vomiting point. Some people can take 300 grams and not vomit. Others can take less than 100 grams. The use of lemon with it is helpful, and sometimes if the patient drinks the glucose and then sucks a lemon afterward or takes a few sips of black coffee, he will get over the nauseating effect. The degree of concentration has some effect; a very concentrated solution will make anybody nauseated.

Q. Is it possible to get along without blood-sugar tests?

A. I think you are almost compelled to make them. We check up all of our cases occasionally—say two or three tests a year.

Q. In these diets, do you give the minimum?

A. We try to give a fair and balanced diet. Never give the minimum unless necessary to keep the patient from using insulin.

Q. Do you find that the patient feels better and works better if he gets a large quantity of carbohydrates?

A. Yes, and he is less liable to break down.

Q. When you speak of a "balanced diet," do you mean one that is pleasing to the patient?

A. Taste is a pretty good thing to follow in the matter of diet. There is something that we do not understand about the mixture of food-stuff. For instance, you cannot force a dog to develop acidosis, and if you undertook to force him to eat a high fat diet, you would make a mighty sick dog of him. Suppose you have a patient with kidney trouble, you give him 40 grams or less of protein and he can live on that, but generally we prefer to give more, as it makes the patient more comfortable and less liable to break down. If the diabetes is mild, we give increased carbohydrates to correspond. It all depends a good deal on the patient. On the one hand we have the type of case who can never get enough to eat. The other extreme is the small, frail woman, with very delicate digestion. Try to feed her coarse vegetables, and she gets upset immediately. What she needs is bread, rice—a concentrated small bulk diet..

CASE V.

Male. Pain in heart region, goes down left arm. Tires easily. Has swelling about tops of shoes. Seems rather weak. Gets out of breath easily. Slight dizziness. Does not sleep particularly well. Blood pressure 155 and 90. Last readings: Left arm, 145 and 70, right arm 135 and 68—not very much of a hypertension. Wassermann test negative. Other tests are essentially negative. Blood count

negative. Electrocardiographic diagnosis: Myocarditis. X-ray shows nothing in particular. Attacks of pain in left side come on mornings, if he walks or exercises. No pain at night. Can bring on an attack intentionally.

We can not go into all the details in this case. One thing ought to be done; his blood pressure should be taken during an attack. I saw one patient who had a violent typical angina, with normal blood pressure of 120 and 60. He had been to all the well-known clinics. We took his blood pressure during the time of an attack and found it was well over 200. I should not wonder if this man had a blood pressure of that character. He has other indications of hypertension, and during attacks of vascular spasm, either his blood pressure goes up excessively or his heart fails to carry the load at that time.

Typical angina is about the hardest thing in the world to treat. I do not feel that cutting the sympathetic nerve gets at the bottom of the thing. It relieves the pain, but the fatal condition is still there.

If you are not afraid to bring on an attack in a mild way, it would be well to see if his blood pressure runs up during an attack. There is no need to restrict the protein in this case. He ought to be on a salt-free diet. For one thing he has edema, as evidenced by the swelling over the shoetops. That always calls for a salt-free diet. Anyway, a salt-free diet will enable him to sleep flat at night, and sometimes the angina is relieved in these cases. It does not do any harm in any case.

CASE VI.

Widow. Age 44. Family history mostly negative, although one brother had high blood pressure. Another had cirrhosis of liver. One sister died of measles while pregnant. At 8 or 10 years of age had bilious fever. Has two living children. Flooding spells four years ago. Weighed 180 lbs. Blood pressure 245. Began to have dizzy spells. Cannot walk on street alone, steers to the right. Tendency to sleep all the time. Melancholia. Thin. Anemic. Pain of light nature over right kidney. Urine shows trace of albumin, no pus or sugar. Wassermann negative. Blood pressure a week ago was 280 and 145.

This looks like a typical case of essential hypertension. There is the usual trace of albumin in the urine, but normal blood chemistry. The melancholia is due no doubt to the cerebral arterio-sclerosis which gets worse as the years go on. Treatment has consisted of iodides, restricted diet as far as protein is concerned, reduced salt.

It has been the general impression that everybody who has hypertension is a big eater, leading a strenuous life, under nervous strain. But you can get a hypertension just as likely in a rather small woman, leading an ordinary kind of life. One thing we always do is hunt for a possible source of infection. If there is any sign of trouble in the tonsils, they should be removed, regardless of her blood pressure. The teeth should be thoroughly x-rayed. Any infection will hinder treatment. This patient will be helped by a salt-free diet. I think if she is put on a strict enough diet, she will feel some better, but it will take six months or a year. With a blood pressure as high as this you must not expect too rapid a change. There is probably enough organic damage to the blood or kidney vessels to make the case refractory to a certain degree. You cannot expect too much in clearing up organic damage by any functional method of treatment.

For my own part, I would stop the iodides, if there is no luetic element present. A strenuous diet will show some results. Within a month she will probably get enough fall of blood pressure so the tonsils could be operated on, but even with the high pressure, it would be better to have them out.

Q. How long should she keep on a salt-free diet?

A. Indefinitely. If a patient comes to you in the early complications, it does not take so long to accomplish results. But in this case now—after eight years you will have to use diet for a long time.

Q. What sort of a diet would you recommend?

A. Strictly salt-free diet. There is no need to limit the protein. If she likes beefsteak, let her have it.

Q. What is your experience with bleeding?

A. An immediate reduction of blood pressure is not of much value, only to relieve attacks of threatened apoplexy and the like. In this case, at any rate, no benefit is to be derived from quick reduction. Artificial lowering of the blood pressure does not get at the seat of the trouble. The point is not to relieve the blood pressure itslef but what is back of it. Unless there is some danger in sight, like apoplexy, she does not need bleeding.

Q. What do you use for the bowels?

A. If a mild laxative will do the work, use cascara or mineral oil. If it is necessary to use something stronger, an occasional dose of Epsom salt or something of that sort.

CASE VII.

Male. Candy manufacturer. Married, 4 children. Usual weight 205; at present 207. Height 5 ft. 7 in. Chief complaint: Rash on arms and chest. Itches. Teeth removed; dentist said some pus. Blood pressure fluctuates apparently. Mother died at

62, hardening of the arteries. Typhoid 19 years ago; nothing else in particular in past history. Eats a lot of ice cream. Does not drink. No headaches. Nervous. Is bothered by the noise of children's play. Constipated. Never had rash until about a month ago. Physical examination essentially negative except rash and obesity. Abdomen seems to be especially fat. Urine essentially negative. Blood thoroughly negative.

The case before this I said was a difficult one to treat. This one I would say was quite easy. What I would do in this patient's case is to reduce his weight and put him on a salt-free diet. The rash can be diagnosed more easily by people who study these things especially, and who have a more scientific conception of it. But I would say to cut down his weight and the skin will probably clear up.

His blood pressure seems to fluctuate, and with normal blood chemistry, not even albumin in the urine, he has an excellent chance to get his blood pressure down and keep it down. On a salt-free diet he will get his weight down quite perceptibly. The patient states that he has reduced about ten pounds in the past two weeks and that his skin is beginning to feel more oily. A skin specialist told him it was not a skin disease. He has been on a limited diet, proteins limited especially. For my part, I would take a chance and let him have his proteins.

Q. What difference is there between that rash and the rash of pellagra?

A. I do not know anything about pellagra. But in the case of a man like this, as well nourished as he is, living the kind of a life he is living, I do not see how he could have pellagra.

CASE VIII.

Laborer. Mexican. Married; 4 children. Complaint: High blood pressure. Healthy as a child until 7 yrs. of age when lost sight of right eye. Family history not very clearly known, but thinks his father had high blood pressure. Past history, nothing in particular. Two years ago became partially blind in left eye. About this same time he became dizzy and troubled with high blood pressure. No constipation.

There is not very much to say about this case. He may be a trifle overweight about the body. The loss of some vision in the remaining eye is, I presume, due to retinitis. Reno-vascular disorders have produced by far the greatest number of cases of blindness. In this case the dizziness can probably be relieved by diet, and in all probability the retina can at least be stopped from getting worse. How much improvement he will have is questionable. The destruction that has occurred cannot be undone. Some years ago retinitis was a very bad prognostic sign, but we no longer fear it. The Wassermann is negative, but you should hunt very carefully for luetic infection.

Q. Does harm ever result from the salt-free diet?

A. There is no harm if used right. An occasional patient will show the effect of salt privation, and you may have to give salt at least temporarily. If, after a number of days or a week, the patient should become weak all over, nauseated, we would know he needed a little salt.

Q. In those cases where there is a very strong family tendency to hypertension, with cerebral hemorrhage, would you advise prophylaxis?

A. Yes, that is where I would want a whole family to stay off salt. I do not believe in making the whole population stay off carbohydrates or protein or salt because of fear that they may develop certain diseases. It is only people who are abnormal, who need abnormal limitations. But where there is a strong tendency to hypertnesion in families, I think it best for the entire family to go on a diet to avoid development of hypertension.

One encouraging thing in these metabolic cases is that you can make tests and see yourself whether the treatment works or not. There is no method that works perfectly in every case. The woman we had here I would say would be the hardest one, and even in her case quite markedly demonstrable benefits may be obtained. But you ought to have laboratory proof.

Some cases of syphilis may cause a sclerosis in the pancreas and thereby bring on diabetes, but those cases are apparently very rare.

Any disturbing cause, any toxic or even mechanical defect may raise the blood pressure and then by removing that cause you may get the pressure down.

SYMPTOMS AND DIAGNOSIS OF CHRONIC APPENDICITIS

FRANK J. MILLOY, M. D.
Phoenix, Arizona.

Presented at the April staff meeting of St. Joseph's Hospital, Phoenix, Ariz., based on a study of cases of chronic appendicitis operated upon in this hospital.

Summarizing the symptoms in the 162 charts submitted for review, the following results are discovered:

In 130 cases there was pain and tenderness in the abdomen; this leaves thirty-two cases in which physical examination was negative. In a few of these cases the physical examination was lacking, and in a

few more no statement was made as to the presence or absence of physical findings.

It is not stated, however, in the 130 cases in which pain and tenderness was present, that these symptoms were elicited at the time of operation. In a large percentage of them the history and physical examination lead us to believe that, at some time in the patient's history, there was pain and tenderness in the abdomen. Therefore we are to conclude that a large percentage of cases have acute exacerbations of a chronic disease of the appendix, and between these exacerbations, physical examination of the abdomen is negative.

In by far the greatest number of these cases, the pain and tenderness is present in the right lower quadrant, generally localized over McBurney's point. In a small number of cases the tenderness is generalized over the abdomen, and in a few cases it is localized in the epigastrium.

Forty-five cases give histories of digestive disturbances, which include distress after eating, gaseous indigestion, belching, and the usual train of digestive disturbances; fifty-seven cases give histories of nausea and vomiting. Nausea was a very frequent symptom, mentioned about four times as often as vomiting.

Toxic symptoms were recorded in twenty cases. These symptoms include headache, fever and a general feeling of malaise.

Of the thirty-two cases which have negative findings, on physical examination nearly all of them gave histories of either digestive or toxic symptoms.

These statistics compare quite favorably with our ordinary conception of chronic appendicitis, especially if we remember that the cases reviewed are dealing with disease of the appendix alone, and do not include cases with multiple pathology.

Constipation was mentioned in only eighteen cases. This figure seems rather low, and it is very probably due to failure to record this symptom.

The symptoms of chronic appendicitis may be classifed under four groups; namely, reflex, mechanical, toxic and infective.

Reflex symptoms are mainly symptoms producing digestive disturbances, and include hypertonus and spasm of the stomach, as well as failure of the pyloric and ileocecal sphincter muscles to relax, leading to gastric or ileal stasis. That hypertonus and hyperperistalsis of the stomach are often reflexly caused by a diseased appendix, and are responsible for the symptoms, was proved by the fact that Moynihan observed violent gastric contractions and spasm of the pyloric and other parts of the stomach on the operating table, in the presence of a chronically diseased appendix. These symptoms indicate disturbed motor phenomena in the stomach and ileum.

Chronic appendicitis does not always disturb the motor function of the gastro-intestinal tract, bringing about hypertonus, but it may cause loss of tone in different parts of the gastro-intestinal tract. It is, therefore, no wonder that in a certain number of cases there is gastric atony, or atony of the cecum. In these cases, the atonic type of constipation is encountered, or, as is less often the case, constipation alternating with diarrhea. Very frequently there may be sympotms of hypertonus and spasm in some parts of the gastro-intestinal tract, and loss of tone in other parts. It is a common experience to find atony of the stomach and spasticity of the cecum or descending colon.

The reflex sensory phenomena due to chronic appendicitis, manifest themselves largely by the presence of pain in the gastric region.

Reflex secretory phenomena resulting from chronic appendicitis, are manifested by disturbances in the gastric secretions. In most cases there is hypersecretion and hyperacidity. Hypo-acidity in chronic appendicitis occurs, but is rare.

The reflex or secretory disturbances may spread to the colon, giving rise to mucous colitis, accompanied by periodic attacks of cramps, and the discharge of large quantities of mucus in the stools; or, they may even spread to cause increased salivary secretions. The presence of hypersecretion in the colon may give rise to frequent attacks of serous diarrhea.

In some cases of chronic appendicitis, the motor phenomena predominate, bringing about distress in the epigastrium during, or immediately after meals, persistent belching, regurgitation of sour fluid, and more or less continuous peristaltic unrest throughout the whole abdomen.

With depression in the motor function of the gastro-intestinal tract, the symptoms of gastro-intestinal atony are encountered, consisting of sensation of persistent heaviness in the abdomen, splashing sound over the stomach and the cecum, and gurgling and rumbling which is present in the abdomen, and especially marked five or six hours after meals.

In some patients, pain is out of proportion to all other phenomena. This pain may be in either lower quadrant, or it may be gastric, and even thoracic, but more characteristic of the pain is the fact that pressure over the appendicular region brings

about pain in the area of which the patient spontaneously complains.

Mechanical symptoms of chronic appendicitis are due to foreign bodies which are usually fecaliths or, occasionally, to parasites in the lumen of the appendix, or to adhesions between the appendix and neighboring organs. Fecaliths frequently give rise to appendicular colic.

The appendix has been called the tonsil of the abdomen, therefore, it is evident that, if infection is present in the appendix, there are generally toxins present also, and these toxins may be very readily absorbed, resulting in toxic symptoms in almost any part of the body.

The infective symptoms of chronic appendicitis are a general feeling of malaise, chilliness, increased pulse frequency, and moderate elevation of temperature.

A diagnosis of chronic appendicitis may be very easy if a history is elicited of repeated attacks of pain in the right lower quadrant, accompanied by more or less digestive disturbance. This, however, is true in only a minority of cases. It has been said that chronic appendicitis can not exist without an acute attack having been present at some time in the patient's life. If such be the case, the acute attack must have occurred sometime during the early childhood and, therefore, can not be recalled by the patient, or the acute inflammation gave rise to such insignificant symptoms as to go unrecognized. It can readily be seen how such could be the case, if we recall cases of acute fulminating appendicitis, which give rise to very few symptoms, that is, to symptoms which would suggest the immediate urgency of operation, until the leukocyte count reveals the severity of the infection. To use the words of Deaver, which are rather crude, but whose crudeness is equalled by the expressiveness of the statement, "The commonest cause of bellyache is appendicitis."

The differential diagnosis of chronic appendicitis includes an array of subjects.

We probably should attempt to differentiate, first, between a gastro-intestinal lesion and one which is outside the gastro-intestinal tract. The urologist is of inestimable value in eliminating the right kidney or a right ureteral lesion. Pelvic lesions in the female often make an exact diagnosis difficult, but the majority of these cases are surgical, and the main problem to determine is whether an organic condition is present; if so, everything can be corrected at operation.

The neurasthenic and the hypochondriac must be recognized in making a diagnosis of chronic appendicitis. This patient is liable not to be relieved by surgical removal, even though the appendix is diseased. Of course, this should not be a contra-indication for operation, but we have not approached the real cause of the complaint.

If the lesion is gastro-intestinal, the great majority of cases lie between ulcer of the stomach, disease of the gall-bladder and disease of the appendix. The main thing to remember here is that, in the majority of cases, more than one condition is present. If we are dealing with an extremely young patient, in all probability the appendix is the offending organ; if the patient has passed the age of twenty-five or thirty, or if it is a woman who has borne children, and we find a chronically inflamed appendix, some of our best statistics claim a chronic infection of the gall-bladder in forty per cent of cases. The finding of this inflamed gall-bladder is not to be relied upon at the time of operation; this should be determined beforehand, by careful study of the patient's symptoms, history and laboratory findings.

In attempting to differentiate between peptic ulcer and chronic appendicitis, the main problem is to determine whether a diseased appendix is present or not. If ulcer is present, there is the well known triad of symptoms, which are: (1) distress coming on at a definite time after meals, usually two to four hours; (2) distress associated with free hydrochloric acid in the stomach; (3) distress which is relieved by the ingestion of food or alkalies. If a diseased appendix also is present, this triad of symptoms may be so masked that it is impossible to elicit the above history. Medical treatment will relieve the symptoms of ulcer but, if the appendix is infected, the ulcer will be activated again. If it is impossible to differentiate between these two conditions, medical treatment will sometimes relieve the symptoms of appendicitis also but, as a rule, this period of relief is very brief. Sometimes all three conditions are present and then all the pathology is usually discovered when the abdomen is opened.

SYMPTOMATOLOGY AND DIAGNOSIS OF CHRONIC APPENDICITIS IN CHILDREN

DUDLEY FOURNIER, M. D.
Phoenix, Arizona.

Presented before the April, 1927, meeting of the staff of St. Joseph's Hospital, Phoenix. Based on review of the case histories of patients operated upon in this hospital.

In review of the literature on chronic appendicitis in children I was surprised at the scarcity of the articles. There were many

excellent articles on acute appendicitis, and most of the writers believe that chronic appendicitis is not an uncommon disease, and that many cases are overlooked and diagnosed as other gastro-intestinal diseases. These diagnoses are not to be criticised, for the symptoms of the simple gastro-intestinal disorders in children are very similar to those of appendicitis. This, coupled with the lack of cooperation upon the part of the child and the difficulty in making a satisfactory examination, accounts for the many mistaken diagnoses.

Chronic appendicitis produces the same symptoms in children as in adults, but is much more difficult to determine. The appendix is situated relatively higher in the child and it may be found anywhere in the abdomen, so the pain and tenderness is not always in the lower right quadrant. Constipation is found in over three-fourths of the cases. Bilious attacks, so-called, and poor appetite are often due to chronic appendicitis. If the child does not gain weight satisfactorily, complains of stomachache, is irritable and is tender over the abdomen, we should suspect appendicitis, and a very careful physical examination and special inquiry for similar previous attacks should be made before giving the usual calomel and castor oil.

One of the main reasons why the examination of a child is unsatisfactory is that it is done in a hurried and brusk manner. With warm hands and very gentle palpation, you may palpate a relaxed abdomen that otherwise may be held rigid. A child normally likes to be held close to its mother and, if its knees are flexed, a very satisfactory examination of the abdomen may be made by facing the patient's back and palpating its abdomen between the child and its mother.

The diagnosis of acute appendicitis in very young children is usually made after the appendix is ruptured and peritonitis has developed.

No doubt many of these cases are mild and recover, but leave the appendix in a chronically inflamed condition. Stout reports a case, aged eleven months, that gave distinct history of attacks extending back to within two months of birth. The appendix was ruptured but there were numerous old adhesions from previous attacks. There was no doubt but that this baby had had a chronic appendicitis.

The colic due to indigestion or to indiscretions of diet may simulate appendicitis. It is usually of shorter duration, is relieved by pressure or an enema, and there is no localized tenderness.

The pain from a pneumonia, pericarditis or pleurisy, especially if the diaphragm is involved, is often referred to the abdomen. This pain is more constant and careful examination of the heart, pleura and lungs should be made.

The acute infectious diseases often cause acute pain in the abdomen. Tonsillitis is often associated with abdominal pain in children.

Right-sided pyelitis or a stone in the kidney or ureter at times causes pains in the lower right quadrant.

Gastro-enteritis closely simulates appendicitis, but it is usually associated with a diarrhea.

Intestinal obstruction and intussuscep tion must be differentiated: the former, by its obstinate constipation; the latter, by the appearance of the characteristic bloody mucus in the stool, the sudden onset and the extreme prostration of the patient.

Mesenteric lymphadenitis, Brenneman says, is indistinguishable from appendicitis.

Osteomyelitis of hte ilium and infections of the hip have similar symptoms.

Masses in tuberculosis of the abdominal lymph nodes, are found quite frequently in children. Dunham and Smith claim that they can readily be demonstrated by x-ray examination.

Kerley and Le Wald, of New York, have done valuable work in the use of the roentgen ray in the study of abdominal diseases in children, and it is their opinion that the retention of barium in the appendix after forty-eight hours is usually an indication of chronic appendicitis.

The so-called cyclic vomiting frequently seen in children, is due to chronic appendicitis in quite a few cases, and a careful inquiry and search should be made for tenderness in the right lower quadrant.

In this hospital during the past three years there were only five case reports of chronic appendicitis in children. The ages were 4, 7, 8, 11 and 14 respectively. The youngest, aged four, had symptoms of partial obstruction and pain in the right side. Repeated enemas relieved this condition. There was no mention made of any previous attacks. If a history of previous attacks can be obtained and placed on our records, it will aid materially in the differential diagnosis of these cases.

Case E. G., aged seven, had symptoms of tenderness over McBurney's point and a rigid right lower quadrant, with no history of previous attacks. From the history this may have been an acute attack.

Case M. D., aged eight, had pain, nausea and vomiting with three previous attacks,

and chronic constipation. The pathologist reported chronic appendicitis.

Case R. T., aged eleven, also had three previous attacks with tenderness over McBurney's point and muscular rigidity. Pathological report: chronic appendicitis.

Case E. F., aged fourteen, complained of pain in the lower right side, with nausea and vomiting, and extreme tenderness over the appendix.

The pathological report was chronic appendicitis. This case is on the border line and should probably be classed in the adult cases. This leaves only three cases operated upon and one recovering without operation.

Apparently chronic appendicitis in children is not very prevalent in this community or, at least, the cases are not hospitalized or operated upon.

SUMMARY

The diagnosis of appendicitis is difficult in children.

The diagnosis and early operation are more important in a child than in an adult.

Chronic appendicitis is mistaken for other gastro-intestinal disorders, and probably overlooked, more than any other disease of childhood.

CHRONIC APPENDICITIS PATHOLOGY AND X-RAY DIAGNOSIS

HARLAN P. MILLS, M. D.
Phoenix, Arizona.

Presented before the April, 1927, staff meeting of St. Joseph's Hospital, Phoenix. Based on study of patients in this hospital during three years past.

Regarding the changes occurring in the appendix as a result of chronic inflammation, there is a great variance in opinion. Some writers classify under this head appendices showing: (1) changes as result of previous acute inflammation—such as fibrosis, irregular thickenings, cicatrices, kinks, strictures and obliterated lumen; (2) changes due to simple low grade inflammation, productive of many of the findings mentioned above, especially that of fibrosis and obliteration of lumen. Others recognize as chronic appendicitis only those inflammatory processes which are chronic from the first, and whose etiology is definitely apparent, as tuberculosis.

If the changes mentioned under the first heading are to be considered as the findings of chronic appendicitis, the condition is a relatively common one, as the majority of appendices of adults removed at operation show one or more of the changes mentioned. If we apply the term only to tuberculous appendices, we have a very small group, comprising relatively few of the appendices removed at operation.

A prominent radiologist, in a recently published article[1], stated that "chronic inflammation of the appendix exists almost entirely as a tuberculous appendicitis." Another writer says[2], "There are practically no chronic inflammations in the appendix with the rare exception of tuberculosis." This writer, however, continues by saying, "There are many chronic changes resulting from previous or recurrent inflammations; such as, scar tissue, fibrosis, adhesions and obliterative changes." In the following paragraph of his article, he outlines the x-ray signs of these chronic changes.

On the other hand, Moschcowitz[3], in his article on appendicitis, includes a large group under the classification of chronic appendicitis, basing his conclusions upon a study of a large amount of tissue material in conjunction with the clinical findings. He shows quite conclusively that the cellular changes which we usually portray as making up the microscopic picture of chronic appendicitis, may be traced back to their origin in acute, subacute or recurrent inflammations. He considers that a subacute or chronic appendicitis is a healing or healed inflammation of the appendix, the gross and cellular changes representing an effort of nature to repair damage done by acute or recurrent inflammations. The term "healing" and "healed" are used in a pathological sense and not clinically.

From a study of the articles mentioned and other recent literature, it seems evident that the apparent difference of opinion is rather a difference in terminology, all agreeing that there are chronic changes in the appendix productive of clinical symptoms; but not all agree as to the sequence of events leading to these changes.

For the past several years, the pathologist of this hospital, in his tissue reports, has included, under the classification of chronic appendicitis, this larger group of tissue changes. These pathological findings may be outlined as: (1) Atrophy of glandular portion of the mucosa and obliteration of the crypts, associated with either narrowing or widening of the lumen, the latter usually in the form of irregular dilatations. This change is considered to be the result of previous acute inflammation which progressed to the point of necrosis, at least of portions of the mucosa. (2) Widening of the submucous fibrous layer. This represents early or incomplete fibrosis as part of the healing process. (3) Infiltration of the muscular coats with new fibrous tissue, as a healing process of a diffuse inflammation of the

walls. Later this contracts causing irregularity of contour, stricture of lumen and kinking. (4) Thickening and deformity of the peritoneal coat due to the organization and fibrosis of exudates. (5) Marked, diffuse narrowing of the lumen or complete obliteration as an end result of the healing process by fibrosis. (6) Inflammatory infiltration of the walls, usually nodular and frequently confined to the distal end, and showing characteristic lesions of tuberculosis. In tuberculous appendicitis there is often marked proliferation of fibrous tissue, and a greatly enlarged appendix results. Tuberculous appendicitis is relatively rare and is found secondary to pulmonary or to other intestinal involvement.

In addition to these findings which are considered as inflammatory in character and origin, there are other changes which are mechanical in origin, or partly mechanical and partly inflammatory.

(1) Fixation or loss of normal mobility, usually associated with reduced mobility of the cecum; or, if affecting the appendix alone, usually the result of pelvic inflammation. This fixation leads to loss of ability to empty itself normally, causing stasis of contents, dilatation of lumen and often kinking and points of constriction.

(2) Abnormal position. We do not recognize a definitely normal position for the appendix in relation to the cecum, but there are positions, especially if fixed, that tend to induce changes that are symptom producing. Of these may be mentioned a position over the brim of the pelvis, or a postcecal position. The muscular activity is interfered with and stasis and dilatations result.

(3) The presence of fecaliths in the lumen of the appendix. The development of fecal concretions probably occurs as a result of stasis and inspissation of fecal material within the lumen, through lack of normal peristalsis. Occasionally these concretions form about small foreign bodies lodged in the appendix. These fecaliths may cause no symptoms unless of sufficient size or so located that they interfere mechanically with peristalsis or, by valve-like effect, cause retention of infectious material. Such an occurrence is not unusual as an apparent cause of acute appendicitis; so that we have abundant ground for the opinion that a poorly drained appendix is a dangerous appendix.

X-RAY EXAMINATION IN THE DIAGNOSIS OF CHRONIC APPENDICITIS

The ability to show, by the x-ray, evidence of the above mentioned changes, has led to the frequent application of this method of examination in cases of suspected chronic appendiceal disease. In such an examination, we recognize two groups of signs pointing to changes in the appendix, indirect and direct. The former refer to evidences found in other parts of the gastro-intestinal tract, and, therefore, an examination of the appendix should include a complete gastro-intestinal examination, otherwise these evidences will not be available. As indirect signs, may be mentioned: (1) pylorospasm with associated delay in emptying of the stomach, (2) spasm and hypermotility of the duodenal cap, (3) ileal stasis with delay in filling of the cecum, (4) spasticity of the colon. These signs are considered as reflex in origin and are not to be taken as conclusive evidence in themselves, but should be given value when taken in conjunction with direct signs and positive history.

The direct signs are: (1) tenderness located definitely in the appendix by direct manipulation when its lumen is outlined with barium and visualized under the fluoroscopic screen. (2) Fixation or reduced mobility, often associated with immobility of the cecum. This sign is of greater importance when there is also tenderness on manipulation or definitely abnormal position. (3) Kinking or irregular filling of the lumen. This finding is considered as pointing to changes which have interfered with the peristaltic action and hence with the emptying of the appendix. (4) The demonstration of fecaliths in the lumen. This finding is of more value if there is evidence of dilatation of the lumen distal to the fecalith or if associated with delayed emptying of the appendix. (5) Obliteration of lumen of the appendix cannot be demonstrated by the x-ray examination, but can only be surmised when the appendix can not be made to fill after a barium meal and barium enema. Often only a small proximal portion of the lumen is outlined, the distal portion being obliterated.

When one or more of these signs are found in an x-ray examination and are properly interpreted in relation to the individual patient, they are of the highest value in arriving at a diagnosis of chronic changes in the appendix.

REFERENCES

(1) Orndoff: Roentgen Ray Studies of the Appendix, Cecum and Ascending Colon. J. A. M. A., Oct. 16, 1926.

(2) White: The Clinical Importance of Chronic Changes in the Appendix. A. J. of Roentgenology, Jan., 1925.

(3) Moschowitz: The Pathological Diagnosis of Disease of the Appendix, Based on the Study of 1500 Specimens. Annals of Surgery.

MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST

Minutes of General Business Session November 5th.

This meeting was held at the luncheon hour on Saturday, November 5th.

Report of the Secretary-Treasurer

The members on our list at the beginning of the year numbered 236. Of these, we have lost by death, two; by resignation, three; dropped for non-payment of dues of three or more years—seven.—leaving a net membership of 224. Of these thirty-four had not paid their dues on Nov. 1st. Several of these have paid up at this meeting. At this present meeting, there have been received 74 applications for membership, giving us a total net membership of 298, divided as follows:

From El Paso and environs	79
From New Mexico	79
From Arizona	119
	13
Miscellaneous	8
Total	298

This is the longest stride we have made toward our goal of 500 members. All credit must be given to our president, Dr. W. W. Waite, and his co-workers in El Paso, in securing these applications. We have approximately 750 doctors in the southwest who are eligible for membership in this association, so that our goal of 500 is not unreasonable.

With regard to the finances of the Association. It will be recalled that the secretary suggested, several years ago, that so long as he retained the dual office of secretary of this Association and editor of the official journal, he would combine the financial resources of the two enterprises. Until we have a larger membership, this Association will show a deficit in its general fund, which will be met out of the funds of the journal. As a matter of fact, the congress of this year has drawn heavily upon the funds of Southwestern Medicine. We feel that this organization and our journal so interweave in their mutual interests, that this method of financing serves the best interests of both. For that reason, the treasurer has not, for several years, tried to segregate the expenses of this Association from the editorial and clerical expenses of the journal. The bank account of the combined organizations, carried in the name of Southwestern Medicine came perilously near to being obliterated by the heavy publicity campaign for this congress. The large influx of new members will restore that account to health,—like a blood transfusion.

Report of the Editor

The business affairs of Southwestern Medicine are in a healthy condition. The business department is entirely in the hands of competent publishers, who collect for the advertisements and conduct the entire business department, with consultations on mooted points with the editor.

Our present business arrangement allows us forty pages of reading matter, for which we pay the publishers $50.00 per month, in addition to the advertising income which they collect directly from the advertisers. This is more space than we have been able to secure material to fill during the past year, so that we can not, at this time, see any reason for asking for further reading.

The editorial staff suffered loss, during the year, by the removal from New Mexico of Dr. C. M. Yater, whose interest and untiring effort as associate editor was an inspiration and joy.

The addition of an associate editor from Arizona has been a great benefit to the journal. Dr. Orville H. Brown of Phoenix, who has had much experience in editorial work, furnishes the book reviews, the current literature reviews, and abstracts.

Dr. Orville Egbert, of El Paso, is proving to be an excellent selection for associate editor from El Paso county. He is prompt and energetic, and the editor greatly appreciates his interest and help.

Our need, as it has been, is now and ever will be, until the editorial millenium arrives,—

(1) Reports of county society meetings, with the papers there presented, or full abstracts of their proceedings.

(2) Case history reports.

(3) Personal news items.

In closing, we wish to say again, like an ever recurring echo, that the journal can NEVER reflect, as it is designed to, the medical activities and the medical and surgical work of the southwest, until we can get such reports for publication.

Report of the Committee on Necro'ogy

In formulating a resolution on necrology, it must be remembered that not all members of the profession in the southwest are members of this association. Therefore, we frequently appear to overlook mention, in our records, of the passing of some valuable and even eminent member of the profession, for this reason.

Among the losses, by death, from the professional ranks in the southwest, during the past two years, there are two who were members of this association, namely: Dr. J. M. Richmond of El Paso, and Dr. James R. Davis, of Silver City, N. M.

In the passing of these two members, the association, together with the profession of their communities, have suffered loss. With the families of these two members, and with their local confreres, we join in expressing our sorrows, and instruct that this expression be recorded on our minutes.

Motion was made and carried that this report be adopted and spread on the minutes of the Association.

Report of Committee on Meetings and Constitution

This committee has thoroughly discussed the problems of meetings, and suggests that all such problems be left to the Program Committee for next years; and that provision for this committee be made by amendment to the constitution, under the duties of the board of trustees, by providing as follows:

The Board of Trustees shall, with the president and secretary of the Association, serve as the Program Committee. This committee shall provide the program for the annual session and shall, in conjunction with the committee on arrangements of the entertaining local society, make all arrangements for the annual convention of the Association.

We recommend, also that the section in the constitution providing for the qualifications of members, be amended by adding the following:

Applications from practitioners living in counties where there are no county societies, may be accepted on approval of the board of trustees.

Motion was made that this report with its recommendations as to revision of the constitution be adopted; motion was seconded and carried.

Report of the Committee on Resolutions

Your Committee on Resolutions regards the present meeting now drawing to a close as a red letter one in the history of our Association, and wishes to offer the following resolutions:

Whereas,—many physicians and surgeons of national and international reputation have sacrificed

time and substance to bring to the southwest their wealth of knowledge and experience,—

Be It Resolved,—that the membership of this Association, and the entire medical profession of the southwest, tender their sincere thanks and appreciation to each physician and surgeon who has so generously assisted in this clinical congress,—and the secretary is instructed to send a letter of appreciation to each of them. Each distinguished be made honorary member of the association.

Whereas,—many men in public life, in El Paso city, in Texas and in New Mexico, have lent very material assistance in obtaining desirable speakers from the United States Public Health Service, this Association wishes to express its appreciation of this valuable service and the secretary is instructed to express to each senator, congressman and other layman who has taken an interest in the success of this meeting, and to the United States Public Health Service, our appreciation of their service to our program committee.

Whereas,—The El Paso County Medical Society has so generously assumed the entire expense of this congress and has so whole-heartedly entertained us with their characteristic hospitality,—it is resolved that we record on the minutes of the Association, our sncere appreciation to the El Paso County Medical Society, and to each and every member thereof, and especially to the chairmen of the various committees who have worked so faithfully to make the meeting a success.

To the newspapers of El Paso, who have so generously and judicially reported our proceedings and meetings, we owe a vote of thanks, and it is resolved that we express, by letter, and by record on our minutes, our appreciation of their courtesy and fine discrimination, as well as their generous allotment of space in the news columns.

To the Hotel Hussman, where the Association has been entertained, we are grateful for their efficient and courteous entertainment, which has added much to the pleasure and efficient conduct of our meetings.

Lastly, and by no means, least, to the president of the Association, Dr. Willis W. Waite, and to that war horse and untiring chairman of the general committee, Dr. Hugh Crouse, we owe special thanks for the very unusual, unique and educational program of this session, and it is resolved that a special expression of our appreciation be recorded on our minutes for them.

Motion was made and carried that these resolutions be adopted as the unanimous expression of the Association.

Dr. Orville Egbert presented the following resolution:

Whereas, the coordination of the various health activities of the federal government is vitally important to the health of the nation, and

Whereas, the United States Public Health Service is best fitted to act as the nucleus around which such co-ordination shall take place.

Therefore, be itresolved, that the Medical & Surgical Association of the Southwest hereby unqualifiedly endorses the Parker Bill now pending in the House of Representatives of the United States. and urges upon the senators and representatives of the several states represented in this Association the speedy enactment of the Parker bill into law.

And, be it further resolved, that the secretary be and is hereby directed to communicate to the said senators and representatives the desires of the Association in this matter.

Dr. Colby Rucker explained the purposes of the Parker Bill, referred to in this resolution, stating that it has the approval of all organized medical bodies. Upon motion, duly seconded, the resolution was adopted and the secretary instructed to carry out its provisions.

The election of officers being declared the next order of business, Dr. J. M. Greer of Phoenix, Ariz., nominated Dr. Hugh Crouse of El Paso, the nomination being seconded by Dr. F. B. Evans, of Alamogordo, N. M. Dr. Crouse was elected by acclamation.

For first vice-president, Dr. P. G. Cornish, Jr., of Albuquerque, N. M., was nominated and elected viva voce.

For second vice-president, Dr. J. M. Greer, of Phoenix, Ariz., was nominated and elected viva voce.

Dr. W. Warner Watkins of Phoenix, Ariz., was re-elected secretary-treasurer.

Invitations had been received from Amarillo, Texas, and from Albuqueque, N. M., for the 1928 meeting. Motion was made that this meeting be held at Albuquerque and that a letter of thanks be sent to Amarillo for their invitation. This motion was carried.

There being no further business, adjournment was taken sine die.

THE MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST

Membership List
November 15, 1927

Adams, C. W., Globe, Ariz.
Adamson, E. W., Douglas, Ariz.
Ahumada, Francsico, El Paso, Texas.
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Anderson, W. H., El Paso, Texas.
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Bakes, E. C., Phoenix, Ariz.
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Barrett, F. O., El Paso, Texas.
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Brown, Edgar H., Phoenix, Ariz.
Brown, O. E., Tucumcari, N. M.
Brown, O. H., Phoenix, Ariz.
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Brown, W. L., El Paso, Texas.
Brunner, George, El Paso, Texas.

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Butler, P. M., Winkelman, Ariz.
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Carson, H. R., Phoenix. Ariz.
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Cathcart, J. W., El Paso, Texas.
Causey, Z., Douglas, Ariz.
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Clohessy, T. T., Phoenix, Ariz.
Clyne, Meade, Tucson, Ariz.
Cohenour, L. B., Albuquerque, N. M.
Colby, E. G., San Diego, Calif.
Comer, M. C., Tucson, Ariz.
Copeland, J. A., Wickenburg, Ariz.
Cornish, P. G., Sr., Albuquerque, N. M.
Cornish, P. G., Jr., Albuquerque, N. M.
Couch, G. B., Phoenix, Ariz.
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Davis, S. C., Tucson, Ariz.
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Egbert, Orville, El Paso, Teas.
Ellis, W. C., Phoenix, Ariz.
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Flaningam, C. E., La Mesa, N. M.
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Fronske, M. G., Flagstaff, Ariz.
Funk, Z. E., Santa Rosa, N. M.
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Garduno, J. L., Albuquerque, N. M.
Garrett, F. D., El Paso, Texas.
Garrison, I. L., Phoenix, Ariz.
Gay, W. W., El Paso, Texas.
Geer, R. H., El Paso, Texas.
Gekler, W. A., Albuquerque, N. M.
Gibbs, M. D., Roy, N. M.
Gillick, D. W., Mescalero, N. M.
Goodrich, G. E., Phoenix, Ariz.
Goss, H. L., Phoenix, Ariz.
Gotthelf, E. J., Tucson, Ariz.
Greer, J. M., Mesa, Ariz.
Gudgel, H. B., Phoenix, Ariz.
Gunter, Clarence, Globe, Ariz.
Gutierrez, C. T., Tucson, Ariz.
Haffner, S. M., El Paso, Texas.
Hanks, S. J., Hurley, N. M.
Harbridge D. F., Phoenix, Ariz.
Hardy, John A., El Paso, Texas.
Harper, T. C., Globe, Ariz.
Harris, H. A., Empalme, Son., Mexico.
Harris, S. T., El Paso, Texas.
Hatcher, J. O., Hillsboro, N. M.
Hathaway, C. L., Winslow, Ariz.
Hawkins, E. W., Winnebago, Nebr.
Helm, H. M., Douglas, Ariz.
Hendricks, C. M., El Paso, Texas.
Hernandez, R. A., Phoenix, Ariz.
Hicks, E. L., Phoenix, Ariz.
Hill, J. B., Glendale, Ariz.
Hogeland, F. T., Cananea, Son., Mexico.
Holmes, Fred G., Phoenix, Ariz.
Holt, W. A., Globe, Ariz.
Homan, R. B., El Paso, Texas.
Homan, Ralph, El Paso, Texas.
Horst, W. W., Globe, Ariz.
Ingalls, H. A., Roswell, N. M.
Irvin, C. E., Miami, Ariz.
Jamieson, W. R., El Paso, Texas.
Jay, Charlton, Bisbee, Ariz.
Jeffries, C. D., Williams, Ariz.
Johnson, F. H., Carrizozo, N. M.
Johnston, L. S., Columbus, N. M.
Jordan, F. C., Phoenix, Ariz.
Joyner, W. T., Roswell, N. M.
Jumper, C. E., Torreon, Coah., Mexico.
Kennedy, R. D., Globe, Ariz.
Kibler, W. S., Tucson, Ariz.
Kirmse, A. T., Tucson, Ariz.
Laben, G. J., Sacaton, Ariz.
Lapsley, John Y., Cananea, Son., Mexico.
Latta, W. J., Wagon Mound, N. M.
Laws, J. W., El Paso, Texas.
Leigh, Harry, El Paso, Texas.
Liddell, T. C., El Paso, Texas.
Littlefield, J. B., Tucson, Ariz.
Long, A. D., El Paso, Texas.
Looney, R. N., Prescott, Ariz.
Love, J. D., El Paso, Texas.
Lovelace, W. R., Albuquerque, N. M.
Lynch, K. D., El Paso, Texas.
Mahoney, Dan L., Tucson, Ariz.
Martin, T. P., Taos, N. M.
Mason, C. H., El Paso, Texas.
Massie, J. A., Santa Fe, N. M.
Matthews, E. C., Albuquerque, N. M.
McBride, R. E., Las Cruces, N. M.
McCamant, T. J., El Paso, Texas.
McCreary, Marcellus, Magdalena, N. M.
McIntyre, A. J., Phoenix, Ariz.
McKinley, E. D., Alamogordo, N. M.
McLoone, J. J., Phoenix, Ariz.
Meason, J. M., Chandler, Ariz.
Miller, F. P., El Paso, Texas.
Miller, H. A., Clovis, N. M.
Milloy, Frank J., Phoenix, Ariz.
Mills, C. W., Tucson, Ariz.
Mills, H. P., Phoenix, Ariz.
Miner, L. L., Los Angeles, Calif.
Moir, J. G., Deming, N. M.
Morris, J. W., Pima, Ariz.
Morrison, J. N., Benson, Ariz.
Mulky, Carl, Albuquerque, N. M.
Muniz, Luis, Saltillo, Coah., Mexico.
Nettle, Anna I., Parker, Ariz.
Newman, S. H., El Paso, Texas.
Nichols, H. A., Springerville, Ariz.
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Palmer, E. P., Phoenix, Ariz.
Pate, L. H., Carlsbad, N. M.
Peters, L. S., Albuquerque, N. M.
Phillips, E. W., Phoenix, Ariz.
Phillips, W. W., Roswell, N. M.
Pickett, J. A., El Paso, Texas.
Prentiss, E. C., El Paso, Texas.
Price, E. C., Quitaque, Texas.
Price, E. D., El Paso, Texas.
Pruett, F. A., Phoenix, Ariz.
Quiroz, E. L., Parral, Chih., Mexico.
Ramey, R. L., El Paso, Texas.
Ramos, R. A., Nogales, Son., Mexico.
Randel, B. W., El Paso, Texas.
Randolph, V. S., Phoenix, Ariz.
Rawlings, J. A., El Paso, Texas.
Redden, J. E., Casa Grande, Ariz.

Reidy, J. A., Albuquerque, N. M.
Rheinheimer, E. W., El Paso, Texas.
Rice, H. W., Morenci, Ariz.
Richards, L. H., Gila Bend, Ariz.
Rigney, Paul, El Paso, Texas.
Riley, J. D., El Paso, Texas.
Rodarte, Domitilo, El Paso, Texas.
Rogde, Jacob, El Paso, Texas.
Rogers, E. B., El Paso, Texas.
Rogers, V. S., El Paso, Texas.
Rogers, W. P., El Paso, Texas.
Safford, H. T., El Paso, Texas.
Schenck, D. S., Tombstone, Ariz.
Schuster, F. P., El Paso, Texas.
Schuster, S. A., El Paso, Texas.
Schwartz, W. A., Phoenix, Ariz.
Scott, James R., Berkeley, Calif.
Seif, T. F., Roy, N. M.
Sexton, T. C., Las Cruces, N. M.
Shannon, H. M., El Paso, Texas.
Shaver, P. M., Carrizozo, N. M.
Shaw, E. B., Las Vegas, N. M.
Shelley, A. A., Phoenix, Ariz.
Shields, G. E., Yuma, Ariz.
Shultz, W. G., Tucson, Ariz.
Slaughter, T. H., Long Beach, Calif.
Smelker, V. A., Nogales, Ariz.
Smith, A. M., Farmington, N. M.
Smith, H. M., Las Vegas, N. M.
Smith, J. M., Chihuahua, Chih., Mexico.
Smith, L. M., El Paso, Texas.
Smith, M. F., Raton, N.M.
Smith, R. K., Tucson, Ariz.
Smith, Willard, Phoenix, Ariz.
Southworth, H. T., Prescott, Ariz.
Spearman, F. S., Aravaipa, Ariz.
Squibb, H. W., Safford, Ariz.
Steed, P. M., Deming, N. M.
Steele, J. H., Wagon Mound, N. M.
Stevens, B. F., El Paso, Texas.
Stevenson, H. E., El Paso, Texas.
Stovall, R. F., Sherman, N. M.
Stratton, J. N., Safford, Ariz.
Stroud, R. J., Tempe, Ariz.
Stroup, H. A., Artesia, N. M.
Sult, C. W., Phoenix, Ariz.
Swackhamer, C. R., Superior, Ariz.
Swearingen, D. D., Roswell, N. M.
Sweek, W. O., Phoenix, Ariz.
Swope, S. D., El Paso, Texas.
Tappan, J. W., Ft. Stanton, N. M.
Terrell, S. L., El Paso, Texas.
Thayer, L. H., Phoenix, Ariz.
Thomas, C. A., Tucson, Ariz.
Thompson, E. B., El Paso, Texas.
Triolo, J. M., Madera, Chih., Mexico.
Tucker, G. E., Anthony, N. M.
Turner, George, El Paso, Texas.
Turney, M. L., Alpine, Texas.
Tuthill, A. M., Phoenix, Ariz.
Utzinger, O. E., Ray, Ariz.
Van Atta, J. R., Albuquerque, N. M.
Vance, James, El Paso, Texas.
Vandevere, W. E., El Paso, Texas.
Vargas, M. G. C., Douglas, Ariz.
Varner, H. H., El Paso, Texas.
Vickers, F. D., Deming, N. M.
Villareal, A., El Paso, Texas.
Vivian, C. S., Phoenix, Ariz.
Von Almen, S. G., El Paso, Texas.
Waite, Willis W., El Paso, Ariz.
Wallace, Alexander, Los Angeles, Calif.
Walsh, J. M., Jerome, Ariz.
Watkins, W. W., Phoenix, Ariz.
Watson, S. H., Tucson, Ariz.
Watts, W. B., Jr., Miami, Ariz.
Weigel, B. J., Albuquerque, N. M.
Werley, G., El Paso, Texas.
West, O. C., Los Mochis, Sin., Mexico.
Whitacre, H. E., Tularosa, N. M.
White, A. C., Hot Springs, N. M.
White, H. S., El Paso, Texas.
Whiting, S. D., Phoenix, Ariz.
Whitmore, W. V., Tucson, Ariz.
Wightman, L. E., Globe, Ariz.
Williams, C. S., Hope, N. M.
Wilson, H. K., Holbrook, Ariz.
Wilson, John C., Los Angeles, Calif.
Wilson, M. E., Phoenix, Ariz.
Winchester, J. M., Clayton, N. M.
Wollard, N. F., Portales, N. M.
Wood, J. P., Fort Bayard, N. M.
Woodall, G. H., Phoenix, Ariz.
Wooley, J. H., Nacozari, Son., Mexico.
Woolston, W. H., Albuquerque, N. M.
Wright, F. T., Douglas, Ariz.
Wright, J. E., Alpine, Texas.
Wyatt, B. L., Tucson, Ariz.
Wylder, M. K., Albuquerque, N. M.
Wylie, Win, Phoenix, Ariz.
Yandell, Harley, Phoenix, Ariz.
Yellott, R. E., Benson, Ariz.
Young, I. C., El Paso, Texas.
Yount, C. E., Prescott, Ariz.

Mebmers Lost—1927.

By Death

Davis, James R., Silver City, N. M.
Richmond, J. M., El Paso, Texas.

By Resignation

Bergmans, J. J., Taos, N. M.
Smallhorst, D. E., Los Angeles, Calif.
Yater, C. M., Cleburne, Texas.

By Non-Payment of Dues

McLandress, G. S., Long Beach, Calif.
Palavicini, Manuel E. G., Parral, Chih., Mexico
Parlett, Roger V., Albuquerque, N. M.
Sorcini, A. Lopez, Mexico City.
Tarr, Earl M., Los Angeles, Calif.
Trevino, Alberto, New York City.

PROCEEDINGS OF THE THIRTEENTH ANNUAL MEETING OF THE MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST, HELD AT EL PASO, TEXAS, NOVEMBER 2-5, 1927.

(Continued from November issue)

Clinical Luncheon—November 2, 1927

Dr. Harry S. Crossen, of St. Louis, being introduced as the first speaker, made the following remarks on "Bleeding Myoma."

"I wish to say, first, that I am delighted to be here with you. This is my first trip this far south in the desert area and the strange vegetation that you have and the barren mountains are all new to me and exceedingly interesting. As it happens, the times that I have been to California I have gone over the northern route and I now see that I have missed a good deal in doing so. I am very much interested in non-medical as well as medical subjects and see that you have plenty of both.

When I was asked to speak today, of course after being entertained so well, I could not refuse. The next question was as to what subject, and it occurred to me that some remarks on the treatment of patients with bleeding myoma might be of interest to you. It is only the emergency type I am going to speak of, and we have worked out a very simple and effective plan of handling it.

The patient with a bleeding myoma constitutes a serious situation. In order to avoid fatality, it is imperative of course to stop the bleeding and yet

it is not permissible to use any operative measure that might be dangerous to that small remaining spark of vitality. Of course, it is important to use the immediate measures, blood transfusion, glucose intravenously, hemostatic injections and drugs, to stop bleeding temporarily, but when you have done all that there still remains the stopping of the bleeding permanently. Yet, until the patient can be built up, you cannot do a radical operation.

We consider these first steps important, when first seeing such a patient, but our plan is to stop right there and not examine further until we can get her into the hospital. We do that because we might start a bleeding which will further weaken her and it is important to avoid any further bleeding and get the patient directly to the hospital. When she arrives there, the patient is given a dose of sedative, usually hyoscin or morphine; she is prepared for vaginal operation, taken to the operating room and then with everything handy to stop what bleeding might ensue, we can go ahead and cut the tumor off. The clamp is removed in twenty-four to thirty-six hours, and usually that takes care of the bleeding. This is a very simple procedure, whenever you find a tumor in the vagina.

The next type is tumor up in the canal. In such a case the probability is we will have to divide the cervix. The division of the cervix of course means lifting the bladder off of it. For division of the vaginal wall, we use hyoscin morphine sulphate and inject a little adrenalin-novocain. After that we divide the cervix up far enough to palpate the tumor to determine its attachment.

The other type in the same class is that in which we find the tumor is attached by a broad base to the wall of the uterus. In such a case, with the internal os divided, the tumor removed and rolled out, take care to catch the capsule as you proceed with the operation step by step so that no bleeding tissue gets away from it after the tumor is removed. Of course you have to get rid of this bleeding tumor or you will not stop the bleeding, and it is necessary to remove it in order to really stop the bleeding. It can be done simply under morphine hyoscin. After the capsule has been cleaned off, if the capsule has not been very vascular, you can remove the forceps one by one. If it is a very vascular capsule, you can bring it down as you put in sutures. Should you find that is not possible, we can leave enough forceps on to control hemorrhage. This is a very simple procedure for these two types of cases and usually takes care of them without further trouble.

The third type is that at which you do not feel any tumor in the vagina or canal, and the bleeding is from the body. In that case of course in addition to the bleeding of the supposed myoma, there comes the question of possible malignancy. We curet the patient to give us tissue for microscopic examination. At the same time we put in radium. That patient is given a minimum dose of radium, 1500 to 1800 milligram-hours and the curettings are examined microscopically. If we find no malignancy that is all we have to do, because as a rule, this procedure takes care of them. If we can stop the bleeding for a itme until the patient is strong enough for the radical operation, that takes care of the immediate problem in practically all of these cases—it tides the patient over until she can be built up and the operation carried out. There are several cases in which operation seems necessary at the time seen, but when the bleeding is stopped and the patient is built up, operation is then not needed.

There are two other points which perhaps I should mention. Ih putting radium into the uterus, if the cana is long and the cervix rather tight, it is a good plan to put in a drainage tube and leave it, as long as the patient is in the hospital, to prevent swelling.

The other point is that in certain cases, even with repeated packing, bleeding may continue. If such is the case when the packing is removed and radium removed, another packing is put in and that packing is changed several times.

In those cases where there is extensive bleeding in spite of these packings, we do two of the radium treatments supplemented by moderate dose of X-ray."

As the second speaker for this luncheon, Dr. Francis M. Pottenger, of Monrovia, Calif., was introduced. His remarks on the "Treatment of Tuberculosis" was, in part, as follows:

"I hate to go back to this unpleasant suoject again, after this pleasing diversion. The modern treatment of tuberculosis, the beginning of symptomatic treatment, goes tack to 1859, when Bevnier established his sanitarium in Germany. Prior to that time there had been one attempt in England to put tuberculosis patients in institutions, but this did not last, and Bevnier's establishment was the first permanent effort made for treatment of this disease. He based his idea of the curability of tuberculosis on an entirely wrong conception, which was that the patient had a small heart and exercise would increase the size of the heart, and therby overcome the disease. However, in spite of his wrong conception, he was very careful in what he gave his patients to do. He built his institution at the bottom of a hill, constructed paths of varying length around the hill, and would have his patients walk so far each day, gradually increasing the distance. He placed benches along the way for them to rest when tired and, in spite of the fact that his ideas of exercise were all wrong, yet by isolating the patient and taking him away from home and out into the open air, he made a good record.

Shortly after that, Peter Detwiler contracted tuberculosis and became one of Bevnier's pupils, and was his assistant for seven years. After that he established an institution of his own in the Black Forest. While Bevnier looked for the sort of exercise he thought tuberculous patients should have, Detwiler claimed that rest was the cure for tuberculosis, and was the first leader in advocating the rest cure.

When I first became interested in tuberculosis, in 1895, the theory of exercise was still being taught in this country, and practically every physician who had anything to do with tuberculosis at that time, told you to get your patients out into the open air and exercise them. So, in 1895, we had not yet learned the ideas of Detwiler, and by the time those ideas reached America, they had made good headway in Europe. Later, we began earnnestly. in this country, to advocate the rest cure, and along with the rest theory went the idea of open air. Then followed the theory of stuffing, giving all kinds of food and twice as much as the patient could digest and assimilate. We had no real conception of what we were doing, but now we have come to the place where we can give a fairly accurate reason for the things we are doing, based on a better understanding of the pathology and clinical course of tuberculosis.

In order to understand it, we must always remember that we have a twin infection. There is a great difference between the primary infection and the reinfection that takes place afterwards, and this difference between the primary infection and the secondary infection with the reaction of the body towards the latter, is the key to what we

are trying to do in the cure of tuberculosis. When the primary infection takes place by slight inoculations, after two or three weeks an immunity becomes established, which can be demonstrated by hypersensitivity of the skin to tuberculin. Clinical tuberculosis is a secondary inoculation, and when we are thinking about the curability of tuberculosis, we are thinking about the treatment of a reinoculation following an infection which has established immunity, and we are dealing with an immunity reaction, rather than a primary infection. When we examine a patient with clinical tuberculosis and when we go over the chest, we find perhaps a widespread area of rales and moisture in that lung. On the x-ray film, we will see a snowstorm, as we call it, or a widespread exudative lesion. If that were all active tuberculosis due to living bicilli invading new lung tissue, the patient would have no chance. But very probably it is due to a reinoculation, with reaction in every old focus. This reaction may take place in the apex, or throughout all the areas of the lung where the disease is unhealed.

The method of healing in these two kinds of lesions is very different. The exudative lesion heals by resolution, or where there is very extensive involvement, it may heal by cavitation; at least there will be some necrosis and cavitation may or may not take place.

The thing we should try to do in tuberculosis is to make early diagnosis and begin early treatment in all cases. You can readily see that the larger the area the more opportunity there is for extension to take place, and the more serious will be the process. What does rest do in these cases? It is perfectly simple what happens. In a patient with extensive tuberculosis, we have a reaction around a focus of infection which is open, with bacilli escaping through into the tissues. If the patient is put at rest, he uses a minimum amount of blood in that lung, and we save him the absorption of a very large amount of toxin. It requires twenty per cent more energy to sit in a chair than to lie on a couch and that means twenty percent more blood through the diseased area. For walking around, six to eight times more oxygen and blood is required, than when at rest, and correspondingly more food. Consequently, when we put a patient at rest, we secure the minimum danger of extension, and improve the individual to that extent.

In the question of open air, we have learned a great deal in the last few years. Some one got the idea that cold air would improve tuberculosis, and they were talking about building sanatariums in Alaska and up around Hudson Bay, because they thought there was something in the cold open air that would cure. We have learned that it is not the cold air, nor the amount of oxygen in the air, because we could all sit in this room for the next twenty-fours with the windows closed, and there would still be sufficient oxygen to take care of our needs. We know now that it is the impact of the air in motion on the body that helps, and not the amount of oxygen.

We are gradually becoming sane on the question of food. The patients have an idea that the fatter they get, the better they are, and you may be sure they will overeat. My rule is to have them gain back to their normal weight and then hold that weight on the least amount of food they can. My experience has been that if they are allowed to eat as much as they can, this is fifty per cent more than they should eat.

Rest is the most important thing that can be given to the patient with active tuberculosis. Any man will do his patient the greatest amount of good, if he will put that patient at rest immediately. Yet, there comes a time when exercise is just as valuable. Exercise is the natural state of the human being, and it is unnatural for any man to lie down on a couch for two or three years, and it cannot be done without damage to the organism. It is my rule, as soon as the activity is over, to have my patients begin taking exercise. This should not be to the extent that it will make him short of breath or tire him. He begins by sitting up, increasing the time of this until he is up for about three hours each day; then he is started very gradually on walking. I try to get every patient, according to his condition, to the point where he is walking at least a mile every day, and sometimes up to ten miles, before discharging him. If you build up physical resistance in this way, before they are discharged, patients can go right into two or three hours of work a day without harm.

As to the question of climate, there is no need to speak. Here in the Southwest, we know climate is a big advantage. You can say all you please about the patient being able to get well from tuberculosis anywhere, but it is a great deal more comfortable and a great deal easier to recover in the Southwest, where there are not so many variations in temperature. The sunshine we have here, and the conditions of the atmosphere, are far better than in climates where there are great changes from day to day. So, when we talk about there being nothing in climate, we do not know our physiology; and when we say there is everything in climate, we do not know our medicine.

Thoracoplasty and pneumothorax are very important for the benefit of a certain group—a group that we would otherwise lose out in. That group will now grow larger, as we come to know these measures better and their benefits more.

There is one final thing to which I want to call attention and that is to remember that you are not simply treating tuberculosis, but you are treating a tuburculous PATIENT. I think we have our minds too much on the bacilli, when we ought to have them more on the individual with the disease, and on the problems he has. His financial problems,—being taken suddenly away from home, away fro mhis family, friends and work, and being forced to readjust his whole life, tends to give him a gloomy outlook. If a young mother, she has to face the problem of getting up and living apart from her child, her home and relatives, nor for a month or two, but for six or nine months, or maybe two or three years. The readjustments,—financial, domestic, business, with all the discouragement and gloom that comes with the doubt as to whether the patient is to recover, are the real problems the tuberculous patient has, and the physician who is the most successful is the one who helps his patients in this way as well as in their physical condition.

The Clinical Congress convened at two o'clock, in the Crystal Room, with Dr. Ralph Matson, of Portland, Ore., as the first lecturer. Dr. Matson spoke on the "Thoracscopic Handling of Pleural Adhesions," showing instruments and explaining the procedure in detail, using many slides of radiographs showing the various types of pleural adhesions, with conditions before and after such treatment.

The second speaker of the afternoon was Dr. Frank Hinman, Professor of Urology of the University of California, San Francisco,

(Continued on page 561)

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THE PARKER BILL

Members of the profession over the Southwest are urged to read carefully the text of the Parker Bill printed below, and to write the representatives (senators and congressmen), from their respective states, urging support of this measure.

This Bill is of particular interest to the Southwest, because it will permit us to secure the aid of experienced health officers, without cost, to help solve the problems of epidemics or endemics, when they occur. Usually our health departments do not have apropriations to meet these emergencies and have no method of coping with them. For example, the poliomyelitis epidemic in New Mexico came without warning, and the Department of Health was forced to borrow money with which to meet the expense of the psysiotherapist who is doing such a valuable work in that state. In the falta fever epidemic in Phoenix in 1922, a worker was sent to Phoenix but only because the Public Health Service was especially interested in that disease.

The Public Health Service is not sufficiently mobile at present to meet emergencies which arise. The proposed reorganization will not mean additional expenditures, but will mean more efficient service to those sections which most need that service.

The proposed Bill reads as follows:

TEXT OF PARKER BILL

A BILL

TO PROVIDE FOR THE CO-ORDINATION OF THE PUBLIC HEALTH ACTIVITIES OF THE GOVERNMENT, AND FOR OTHER PURPOSES.

BE IT ENACTED BY THE SENATE AND HOUSE OF REPRESENTATIVES OF THE UNITED STATES OF AMERICA IN CONGRESS ASSEMBLED, That whenever the President finds that it will promote greater efficiency in the conduct of the public health activities of the Government, he is authorized, by Executive order, to transfer to the Public Health Service all or any part of any executive agency (other than an agency of the military or naval forces, the War Department, the Navy Department, or the United States Veterans' Bureau) engaged in carrying on a public health activity. Any such Executive order shall also designate the records, property (including office equipment), personnel, and unexpended balance of appropriations to be transferred.

SEC. 2 (a) The President is authorized, by Executive order, to direct that officers or employees of the Public Health Service shall be detailed to any other executive agency which is carrying on a public health activity, in order to supervise or co-operate in such work.

(b) Upon the request of the head of an executive department or an independent establishment which is carrying on a public health activity, the Surgeon General of the Public Health Service is authorized to detail officers or employees of the Public Health Service to such department or independent establishment, in order to supervise or co-operate in such work.

SEC. 3. (a) The Surgeon General of the Public Health Service is authorized to detail medical or scientific personnel of the Public Health Service to educational and research institutions for special studies of scientific problems relating to public health and for the dissemination of information relating to public health, and to extend the facilities of the Hygienic Laboratory to health officials and scientists engaged in special study.

(b) The Secretary of the Treasury is authorized to establish such additional divisions in the Hygienic Laboratory as he deems necessary to provide agencies for the solution of public health problems, and facilities for the co-ordination of research of public health officials and scientists and for demonstrations of sanitary methods and appliances.

SEC. 4. (a) The Secretary of the Treasury is authorized to transmit to Congress estimates of the amounts necessary for the construction, on the site now occupied by the Hygienic Laboratory, of buildings adequate for the Public Health Service.

(b) The administrative office and bureau divisions of the Public Health Service in the District of Columbia shall be admininstered as a part of the departmental organization, and the scientific offices and research laboratories of the Public Health Service (whether or not in the District of Colum-

bia) shall be administered as a part of the field service.

SEC. 5. (a) Hereafter sanitary engineers, dental officers and scientists of the Public Health Service, selected for general service and subject to changes of station, shall be appointed by the President, by and with the advice and consent of the Senate, subject to the same conditions and limitations as medical officers of the Public Health Service, except that—

(1) Examinations shall be in the several branches of the profession of the person to be appointed;

(2) Any sanitary engineer, medical, dental, or other scientific officer in the Public Health Service upon the date of passage of this Act, or transferred to the Public Health Service under the authority of this Act, after examination by a board of officers convened by the Surgeon General of the Public Health Service, and upon the recommendation of such board and the Surgeon General, may be apponited to any grade designated by such board and approved by the Surgeon General; and in computing longevity pay and pay period the service of any such officer shall be counted in the same manner as though he were in the service on June 30, 1922;

(3) Whenever in the opinion of the Surgeon General of the Public Health Service commissioned officers are not available for the performance of permanent duties requiring highly specialized traning and experience in scientific research, including the duties of chiefs of divisions of the Hygenic Laboratory, any person, after examination by a board of officers convened by the Surgeon General of the Public Health Service and upon the recommendation of such board and the Surgeon General, may be appointed to any grade designated by such board and approved by the Surgeon General.

(b) The Surgeon General of the Public Health Service shall designate the grades of commissioned officers of the Public Health Service other than medical officers, corresponding to the grades of medical officers.

(c) Hereafter commissioned officers of the Public Health Service shall be entitled to promotion according to the same length of service as officers of corresponding grades of the Medical Corps of the Army, and the Surgeon General of the Public Health Service shall have the equivalent rank of, and shall be entitled to the same pay and allowances as, the Surgeon General of the Army.

(d) The limitation now imposed upon the number of Assistant Surgeons General and senior surgeons of the Public Health Service, on active duty, is hereby repealed.

(e) Hereafter officers of the Public Health Service in the grade of Assistant Surgeon General on field service shall be designated and known as medical directors.

SEC. 6. Hereafter the Secretary of the Treasury shall appoint, in accordance with the civil-service laws, all officers and employees, other than commissioned officers, of the Public Health Service, and may make any such appointment effective as of the date on which the officer or employee enters upon duty.

SEC. 7. There is hereby established in the Public Health Service a Nurse Corps, which shall consist of a superintendent and such other nurses as the Secretary of the Treasury may deem necessary. The members of the Nurse Corps shall be entitled to receive the same pay and allowances as nurses of the Army.

SEC. 8. Hereafter the Advisory Board for the Hygienic Laboratory shall be known as the National Advisory Health Council, and the Surgeon General of the Public Health Service, with the approval of the Secretary of the Treasury, is authorized to appoint, from representatives of the public health profession, five additional members of such council. The terms of service, compensation, and allowances of such additional members shall be the same as the other members of such council not in the regular employment of the Government, except that the terms of service of the members first appointed shall be so arranged that the terms of not more than two members shall expire next year. Such council, in addition to its other functions, shall advise the Surgeon General of the Public Health Service in respect of public health activities.

SEC. 9. As used in this Act, the term "executive agency" means any board, bureau, division, service, or office in the executive branch of the Government.

DIPHTHERIA IN ARIZONA AND NEW MEXICO

During this year there has been a recurrence of a virulent type of diphtheria. As a result, the incidence of the disease is much greater in Arizona and New Mexico than for several years past; and this in spite of a fairly wide-spread use of toxin-antitoxin immunization. Several physicians have reported the occurrence of diphtheria in children supposed to be immune, or who had been given the injections of toxin-antitoxin last year.

At intervals during the past year, warnings have appeared in the medical press, to the effect that we were due for a recurrence of a virulent type of diphtheria this year, and that the disease would, no doubt, occur in some supposedly immune individuals. This is due to the fact that immunity to diphtheria is not absolutely fixed, but varies in different individuals and in the same individual at different periods. Thus exposure to a very virulent type of organism at a time when the immunity defenses are weak, can very conceivably result in infection.

These disappointing occurrences should not be taken as an argument against the use of toxin-antitoxin, because the need for this is even greater now than ever before. It is gratifying to notice that the use of this protection to children is coming into general use over Arizona and New Mexico. From Snowflake, Ariz., the news item comes that the Schick test is being given to all those who were given toxin-antitoxin last year, and immunization to those who have not previously been inoculated. Dr. Platt reports that, with a few exceptions, the children who were given the preventive inoculations in Graham County have remained free from diphtheria; he is planning to retest the entire group who were inoculated last year. Dr. Dostal of Jerome is conducting a free diphtheria clinic in Jerome, test-

ing and inoculating without charge all children who apply. Dr. Durfee in Cochise County is urging the general inoculation of all school children in that county. In New Mexico, where toxin-antitoxin has been used fairly generally, the increase in the incidence of diphtheria has been almost entirely among the young children entering school this year, and who have not yet been inoculated.

FIRST VACCINATIONS AGAINST SMALLPOX IN THE UNITED STATES

Those who know the history of the southwest take pride in the unique place which New Mexico occupies in the historical leadership among the states. It is often astonishing to a native of New England to hear that Santa Fe was a thrivng settlement of white people sixty years before the Pilgrims landed at Plymouth, and that this city was founded almost coincidently with St. Augustine, Fla., the first settlement in the New World.

It has been recently discovered, by search through the archives of New Mexico that, within five years of the discovery by Jenner of vaccination in 1799, it was being generally practiced through the province of which New Mexico was then a part. The story told in the Santa Fe New Mexican of December 12, by Lansing B. Bloom is so interesting that it is produced herewith verbatim:

The discovery of vaccination against smallpox is generally credited to Dr. Edward Jenner and first came into medical practice in the year 1799. It is remarkable that our New Mexico archives reveal the fact that the use of vaccine was introduced into this province of New Spain in 1804, only five years after its first general use began in England, and it may be of interest to trace this strange migration in medical history and review the evidence of the early practice of vaccination in New Mexico.

The most striking fact connected with the extension of vaccination over the world was the sending out by the court of Spain of an expedition in the year 1803. This expedition was sent out for the purpose of diffusing the pus of cow-pox, or vaccine, through all the Spanish possessions in the old and new worlds, and it returned in three years, having circumnavigated the globe and having succeeded beyond its utmost expectations. Perhaps we may consider this event as one of the last evidences of greatness in the old Spanish realm previous to the wars of independence which broke out in Spain and in her colonies in 1810.

It would seem beyond serious question that the knowledge and practice of vaccination reached Chihuahua from Mexico City as one result of the above expedition, though the evidence of this does not appear in the New Mexico archives. But from Chihuahua northwards the story may be pieced together from some 30 documents. The first is a communication from Brigadier Nemesia Salcedo, general commandant of the internal provinces to Gov. Fernando Chacon at Santa Fe, as follows:

"The discovery of the inoculation of cow-pox having been found in Spain and in nearly all Europe, to be the most efficacious preservative from common smallpox. I have managed by means of the most active and effective measures to have it established in this villa.

"Already it has been propagated to some towns and military posts, and to the end that the inhabitants of that province may not lack such a precious discovery, I advise your honor to see that the Surgeon Don Christoval Larranga be included in the cordon (caravan) at the end of the present year, bringing in his company six or eight children, sons of the troop or residents, so that in them the fluid may be infused, inoculating them from arm to arm when they shall return from here, since this is the surest method of transmitting it.'

The arrangement indicated in the above papers was carried out that winter, as appears from the next paper in which we see the surgeon with a number of inoculated children returning from Chihuahua and administering the transfusion successively at "el Paraje de Valverde." (then the first settlement north of Paso del Norte), Sevilleta, and Sabinal.

Inquiry shows that even today the earliest form of inoculation, from one person to another, still persists in Mexican plazas and Indian pueblos. As an instance, in the fall of 1923, the health officer of Santa Fe county performed a number of vaccinetions in the little plaza called Rio en Medio. Later when the county nurse visited the place to see how these cases were progressing she found that the people there had inoculated everybody from those first treated, using in the operation needles, pins or any sharp instrument available.

Such procedure today seems obsolete and almost absurd, though it is reported to persist also in other parts of the United States. But 120 years ago this method was the latest thing in the practice of medicine, and its early introduction into such an isolated province as New Mexico shows how astonishingly efficient the machinery of the old Spanish realm might be.

A CORRECTION

In our October issue, a list of the Class A hospitals in Arizona was published, and from this list there was omitted the name of the U. S. Veterans Bureau Hospital No. 50, at Whipple Barracks, Ariz. This hospital should have been included, and we regret the omission.

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PROCEEDINGS OF THE THIRTEENTH ANNUAL MEETING

(Continued from page 557)

whose subject was "Genito-Urinary Tuberculosis from a Surgical Standpoint." Dr. Hinman's paper will appear in full in an early number of SOUTHWESTERN MEDICINE.

At eight o'clock, a public lecture was given at the Texas Grand Theater, by Dr. William H. Park, Chief of the Bureau of Laboratories, New York City, on "Pasteurization and the Tuberculous School Child."

Dr. Waite announced that the Association desired to give the general public as much benefit from this convention as possible, and that Mayor Walker of New York had sent Dr. Park, with his compliments, to tell us how public health is safeguarded in that city.

Mayor R. E. Thomason, of El Paso, introduced Dr. Park, who spoke for an hour and a half, giving an interesting history of the developments in tuberculosis study and the relation of bovine tuberculosis to human infection. He also discussed the advantages of pasteurization. Dr. Park digressed from his general subject to give some timely information and advice on smallpox, diphtheria, scarlet fever, and measles.

Thursday, November 3rd.

Clinics were held at the hospitals, as follows:

Dr. Carl A. Hedblom at the Masonic Hospital, on thoracoplasty.

Dr. Frank Hinman at Hotel Dieu on genito-urinary diagnosis.

Dr. Harry A. Crossen, at the City-County Hospital on gynecologic diagnosis.

Dr. Francis M. Pottenger at Hotel Dieu on diseases of the lungs (See last month's journal).

At the general Congress in the Crystal Room, Hotel Hussman, the first speaker was Dr. James T. Case, of Battle Creek, Mich., professor of Roentgenology at Northwestern University, spoke on the "X-ray Aspects of Malignancy of the Gastro-Intestinal Tract." This talk was profusely illustrated with lantern slides, and covered the subject of cancer of the colon very masterfully.

The second speaker of the morning was Dr. Carl A. Hedblom, Professor of Surgery at the University of Ilinois, Chicago, who spoke on "Non-Tuberculous Pulmonary Conditions, Especialy Cancer." Either the completed paper or a summary of this address will be given in a future issue of this journal.

At the clinical luncheon, at twelve o'clock, Dr. Rogers introduced Dr. W. Colby Rucker, of the United States Public Health Service. Dr. Rucker has been identified with the Public Health Service since 1902. His work in connection with the suppression of bubonic plague in San Francisco and later in New Orleans was outstanding. He was also in charge of the control measures instituted by the Public Health Service in controlling the epidemic of infantile paralysis in 1916. He spoke at this luncheon on scarlet fever, in part as follows:

"The work which has been done on scarlet fever in recent years has opened up very greatly the entire subject and has placed us in possession of some very accurate epidemiological weapons to use against the disease. Before the Dicks had done their work, howev,re there were certain epidemiological facts which were well known. In the first few months of life the child has an immunity to scarlet fever; this is maternal immunity, and with the passing of this the incidence curve is still low because the child is not exposed to people who have the disease. As soon as the child reaches the kindergarten age, there is a very sharp rise in the incidence curve, which peaks very rapidly until it reaches its maximum about the tenth or twelfth year. It then runs along and is an almost flat curve until the fifteenth or sixteenth year, when it begins to curve off. By the time the thirtieth year has been reached, we ar back again almost on the base line.

There are only two ways in which a person gets an immunity to a disease; by artificial immunization or by having had the disease in either severe or mild form. Just looking at the curve at this time will tell you at once that this is a very common disease and that all of us at one time or another have had it. This brings us to the second epidemilological point and that is that in the great majority of cases there is no scarlet and no rash. A great bulk of the cases are manifested solely by a very severe angina and a febrile reaction. The child is sick for a shorter or longer period of time and then recovers. The probabilities are that there are no scarlet fever carriers, if we exclude those people who have running ears, or running wounds of any sort following the disease. These persons are carriers, but it is very uncommon for this to occur in the disease and therefore we may sey that there is usually no such thing as a scarlet fever carrier. It is disseminated by the secretions in the early hours of the disease while there is still an angina. All this was reasoned out before the Dicks did their work, but they corroborated and substantiated it.

We know one of the great harms that come from scarlet fever is nephritis; it is probably more responsible for nephritis than any other single condition. If, by the control of scarlet fever, we are able to reduce our nephritis incidence rate, that is a very important matter. The work the Dicks have done has been most illuminating. They have announced that the disease is associated with a highly specialized streptococcus belonging to the hemolytic group. This organism is found in the throats of persons having the disease. It has been cultured and its introduction into the bodies of persons not immune will produce the disease. The toxin of this organism will produce the scarlet fever rash, but will not immunize the person against the disease—a most important epidemiological point. If you inject a person with the toxin, you will produce a typical scarlet fever rash. In other words, there is no relation whatsoever between this rash and immunization and furthermore

we may say that the scales produced by this rash are non-infectious and play no part in the spread of scarlet fever. A most important point because all of us have heard those old fallacies about unpacking Mary's doll and thereby giving little Susie scarlet fever and little Susie dying, and the one about the celebrated doctor who got the scales on his whiskers and spread the disease throughout the whole community. There is nothing in these stories—they make very good fiction, but they are not true.

(To be concluded next month)

SANTA CRUZ COUNTY (Ariz.) MEDICAL SOCIETY of Nogales.

At a meeting of this Society held on December 3rd, Dr. A. H. Noon, one of the pioneer physicians of Arizona, who has not been in active practice for many years, evidenced his interest in medical affairs by accepting the presidency of the Santa Cruz County Medical Society for the coming year. Dr. T. B. Fitts, Nogales, was made vice-president, Dr. W. F. Chenoweth was elected secretary and Dr. B. M. Richardson was made treasurer. Drs. A. L. Gustetter, V. A. Smelker and W. F. Chenoweth were made members of the Board of Censors.

BERNALILLO COUNTY (N.M.) MEDICAL SOCIETY

The Bernalillo County Medical Society held their annual meeting at the Chamber of Commerce, on Wednesday evening, December 7th. The following officers were elected for the year 1928:

Dr. P. G. Cornish, Jr., president.
Dr. L. F. Elliott, first vice-president.
Dr. W. H. Woolston, second vice-president.
Dr. L. B. Cohenour, secretary-treasurer.
Drs. E. E. Royer and Carl Mulky, delegates to the New Mexico Medical Society.
Dr. C. C. Davis, member board of censors.
The society holds monthly meetings.

COCHISE COUNTY MEDICAL SOCIETY (Arizona)

At the annual meeting of the Cochise County Medical Society, held at Douglas, Ariz., on December 7th, the following officers were elected for the ensuing year:

President, Dr. G. Fitzgerald, Bisbee.
Vice-President, Dr. Z. Causey, Douglas.
Secretary and Treasurer, Dr. H. French, Bisbee.
Member Board of Censors, Dr. A. E. Cruthirds, Bisbee.

Delegates to the State Association, Drs. John Cook of Douglas, and G. A. Bridge of Bisbee; Alternates are Drs. E. W. Adamson of Douglas and G. Fitzgerald of Bisbee.

Dr. H. M.Helm of the Calumet Hospital presented the paper of the evening.

YUMA COUNTY MEDICAL SOCIETY (Arizona)

The Yuma County Medical Society, at a recent meeting, elected the following officers for the ensuing year:

President, Dr. H. A. Reese.
Vice-President, Dr. J. D. Forrest.
Secretary, Dr. W. C. Cain.
Censors, Drs. P. Seiberts and R. R. Knotts.

PERSONALS AND NEWS

ORTHODONTISTS MEETING IN EL PASO

El Paso entertained another interstate gathering early in December, when the Southwestern Society of Orthadontists met there with headquarters at the Hotel Paso del Norte. Dr. W. T. Chapman of El Paso was president of the Society. Among the speakers on the program were Dr. R. B. Homen and Dr. W. L. Brown, of El Paso.

HEALTH EXAMINATION WORK IN BISBEE

A very comprehensive program of health examinations for young children is being carried through the cooperative efforts of the local Red Cross, the Antituberculosis Association, the Health Center, aided by the medical staffs of the Copper Queen and the Calumet and Arizona hospitals. The children are being enrolled through the Health Center, and then sent to the Central School building, where examinations are held every Tuesday between two and four o'clock. Health conferences for children and their parents are held twice a week. This work is for children of pre-school age, designed to detect any physical defects before the children enter school.

DR. JOHN C. BURTON, of Hermosillo, Sonora, Mexico, was a visitor in Nogales, Ariz., for several days early in December. Dr. Burton operates a private hospital at Hermosillo.

DR. J. W. BAZELL, of Winslow, Ariz., has been appointed City Health Officer to fill the vacancy created by the resignation of Dr. John R. Walls.

DR. N. C. BLEDSOE, of Bisbee, Ariz., is demonstrating his versatility in realms outside of the practice of medicine. He recently assisted in conferring the thirty-third degree of Masonry upon a candidate in Tucson, being himself one of nine Masons in Arizona who hold this degree. In the same paper from which this item of news was culled appears the announcement that Dr. Bledsoe had been elected to his firth ter mas chairman of the Cochise Council of the Boy Scouts of America.

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DR. T. B. FITTS, of Nogales, Ariz., spent several days in Guaymas, Sonora, the latter part of November.

DR. W. F. CHENOWETH, of Nogales, Ariz., made a business trip to Hermosillo, Sonora, the latter part of November.

DR. T. O. BUNDY, of Marlin, Texas, a member of the Buie Clinic at Marlin Hot Springs, was a visitor in Clifton, Ariz., early in December. He came to inspect the possibilities of the hot springs near Clifton, and was quite royally entertained by the Clifton Commercial Club.

DR. HARRLY L. SCHORNICK, osteopath, of Tempe, Ariz., has been appointed a member of the Board of Medical Examiners, taking the place of Dr. Harriet D. Johnson, Winslow, who has moved from the state.

FREE DIPHTHERIA CLINIC AT JEROME, ARIZ.

A clinic established by Dr. Robert Dostal, city health officer of Jerome, Ariz., at the United Verde Hospital, furnishes free examination and tests as to susceptibility to diphtheria. The clinic operates on Saturday afternoon.

DR. AND MRS. HUGO HELM, of Douglas, after attending the Clinical Congress in El Paso, early in November, took a week's trip through southern New Mexico and the Texas panhandle, visiting the famous Carlsbad Caverns near Carlsbad, N. M.

The ARIZONA STATE BOARD OF HEALTH is conducting a program under the Sheppard-Towner provisions of the Child Hygiene Division, in Tombstone during December. Mrs. Mary Kelleher, R.N., in charge of this work.

DR. JOHN R. WALLS, of Winslow, Ariz., has tendered his resignation as City Health Officer of that town. In his signed statement transmitting his resignation, he stated that he was unable to secure the co-operation of the city offfcials in an effective health program.

DR. JOHN E. BACON, of Miami, Ariz., and family spent several days on the coast during the latter part of November.

DR. A. C. ROUNSEVILLE, of Williams, Ariz., visited Los Angeles the latter part of November, seeking advice about an injury to his hand suffered in the early part of the year.

The COCHISE COUNTY MEDICAL SOCIETY held a dinner meeting at the Warren District Country Club at Bisbee, Ariz., on November 19th. The guest of honor was Dr. Ernest Clyde Fishbaugh of Los Angeles, who gave an illustrated address following the meeting.

DR. G. B. MADSEN, of Globe, Ariz., formerly on the Old Dominion Hospital staff, has resigned that position, and moved to Tucson where he will be associated with the Arizona Desert Sanitarium.

DR. E. E. SWEENEY, of Ray, Ariz., has accepted a position on the Old Dominion Hospital staff at Globe and moved to the latter city.

DR. R. D. KENNEDY, of Globe, Ariz., addressed the Globe Rotary Club on December 7th, on "Recent Advances in Medicine and Surgery."

DR. E. L. CHRISTENSEN, of Miami, will hold a number of free clinics for the school children, for the purpose of examining the eyes. This work will begin shortly after the first of January.

DR. ARTHUR C. JORDAN, formerly of Peabody,

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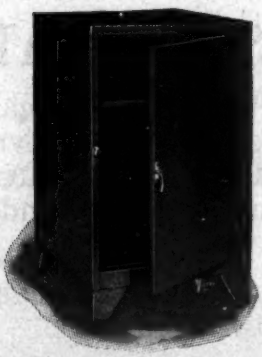

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Mass., is now associated with DR. JOHN J. McLOONE, of Phoenix, in the practice of eye, ear, nose and throat specialty. Dr. Jordan is a graduate of Harvard University Medical School class of 1925.

DR. EARL O. G. SCHMITT, of the Mayo Clinic, Rochester, Minn., is located at Castle Hot Springs, Ariz., for the winter. Dr. Schmitt is a graduate of the University of Minnesota Medical School, class of 1923, and was an associate in the department of internal medicine at the Mayo Clinic.

DR. CHARLES O. DONALDSON, one of the leading practitioners of roentgenology in the United States, formerly of Minneapolis, has located in Chandler, Ariz. Dr. Donaldson, after practicing his specialty for twenty years, finds it necessary to withdraw from this field for a time, and will engage in general practice in Chandler. Dr. Donaldson's contact with medical practice has not been circumscribed and he will no doubt enjoy taking up general work again, and he will be a welcome addition to the medical fraternity of Maricopa County.

DR. J. A. MYERS, of Minneapolis, Minn., specialist in tuberculosis and chest diseases, was a visitor in Phoenix for a week or two during December. Dr. Myers is Assistant Professor of Preventive Medicine and Public Health in the University of Minnesota Medical School.

DR. MARY LAWSON NEFF, of Los Angeles, spent a week in Phoenix during the early part of December, holding consultations in her specialty of neurology and psychiatry.

DR. HARLAN P. MILLS, of the Pathological Laboratory, Phoenix, returned about December 10th from the Radiological Society of North America, whose annual meeting was held in New Orleans. Dr. Mills read a paper on Cholecystography, with report of 700 examinations.

DR. EUCLID C. WILLS, of San Diego, Calif., was a recent visitor in Phoenix, Ariz. Dr. Wills was at one time located at Yuma; later he went into Mexico. He has now retired from practice and is in business in San Diego.

DR. R. D. KENNEDY, of Globe, was elected a member of the Board of Governors of the American College of Surgeons, at their meeting in Detroit, in October.

DRS. VICKERS AND MORAN, of Deming, N. M., have installed radiographic equipment in their offices in the Mahoney Building, selecting the Victor model.

NURSES ON TWELVE HOUR BASIS

Beginning on November 19th, the nurses who are members of the Arizona State Nurses' Association went on a twelve-hour basis in all hospitals and sanitoriums. In institutions, physicians may have nursing service either during the day or night, but if twenty-four private nursing service is desired, two nurses must be employed. Sleeping facilities will not longer be provided in the hospitals for private nurses. It is claimed by the hospitals that it will be more economical for them to provide additional graduate nurse service for night duty, under the new plan, than to provide sleeping accommodations for nurses on twenty-four hour duty.

It is claimed that this arrangement will be more economical for the patient. The arrangement does not apply to nursing service in private homes, where the old provisions are still permissible.

DR. G. H. FITZGERALD, of Bisbee, Ariz., in a talk before the Rotary Club of that city on November 10th, gave a resume of the cancer situation as reported by the American Society for the Control of Cancer, this talk being reported at length in the Bisbee Review of Nov. 11th.

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SOCIAL SERVICE CLINIC
(Phoenix, Ariz.)

The board of directors of the Social Service Center of Phoenix, Ariz., at its meeting on Nov. 16th, passed a resolution of thanks to the MARICOPA COUNTY MEDICAL SOCIETY for the interest taken by the doctors in the clinic work of the Center. The president of the Society is an ex-officio member of this board. During the ten months of the year ending October 31, 5,440 treatments were given at this clinic, as follows:- Tuberculosis, 922; mercurosal, 354; salvarsan, 387; hospitalized patients (1,598 days), 93; tonsilectomies, 86; adenoidectomies, 64; dental patients, 264; laboratory examinations, 501; x-ray examinations, 71; other operations, 4. Clinics are conducted on Monday, Tuesday, Wednesday and Thursday in the following departments: tuberculosis; general medicine; eye, ear, nose and throat; children's diseases; genito-urinary; obstetrics; dentistry; emergency.

DR. JOHN I. MITCHELL, of Salem, Ind., is spending the winter in Phoenix, in the interest of the health of a daughter.

DR. D. L. FLANARY, of St. Louis, Mo., upon the appearance of the first snow in that city, closed his office and will spend the next five months in the Salt River Valley, leaving the citizens of the Mississippi Valley metropolis to seek other advice about their nose and throat troubles.

DR. H. P. COLLINS, formerly a practitioner of Phoenix, has returned to that city and is established at his home at 743 E. McDowell for the time. He expects, later, to find office quarters. Dr. Collins, for the past fifteen years has been practicing in Mexico City.

DR. J. M. GREER, of Mesa, Ariz., has been appointed a member of the Medical Examining Board of Arizona, to fill the vacancy created by the death of Dr. A. G. Schnabel of Tucson.

DR. CHARLES L. LOWMAN, of Los Angeles, spoke to the staff of St. Joseph's Hospital, Phoenix, Ariz., on November 22nd, on the treatment of poliomyelitis. Dr. Lowman's work is limited to the treatment of diseases and deformities of bones and joints. He is the founder of the Orthopedic Hospital-School of Los Angeles.

At noon of the day of his visit to Phoenix, a luncheon was tendered him at the Arizona Club, at which about a dozen of his friends and admirers were favored by an informal discussion of lower back pain.

ST. JOSEPH'S HOSPITAL STAFF MEETINGS
(Phoenix, Ariz.)

The first meeting after the summer vacation was held on November 14th, with a total of thirty-one present. Dr. R. W. Craig, who had been asked by the Advisory Committee to preside at this meeting was elected permanent chairman to serve out the unexpired term of Dr. Willard Smith, resigned.

The minutes of the May meeting were read and approved.

The program which had been prepared by Dr. Fred Holmes, of the Executive Committee, consisted of a critical review of five case records of patients who had recently died in the hospital, all being discussed by staff members other than the doctors treating the patients.

Dr. H. B. GUDGEL discussed Case No. 11714, a case of typhoid fever with hemorrhage and death. The advisability of blood transfusion was brought up and discussed at some length, chiefly by the men who had heard the lectures of Dr. W. W. Duke at the recent meeting in El Paso. Typhoid vaccine was also discussed.

DR. LOUIS DYSART discussed case 11935, diag-

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nosed as traumatic appendicitis, followed by liver abscess and death. Dr. Wylie stated, in general discussion, that he does not think a blow several inches away from the appendix area could be regarded as a cause of appendicitis; he thought it was a coincidence only.

DR. J. M. GREER discussed case 12096, appendicitis, postoperative pneumonia, pulmonary hemorrhage, death. The question of pneumonia as against tuberculosis was discussed.

DR. H. M. PURCELL discussed case 11822, acute cerebral meningitis, urinary retension and death.

DR. CHAS. S. VIVIAN discussed case 11813, papilloma of the bladder, with operation, secondary hemorrhage and death. He thought electrocoagulation might be better than surgical excision of such a growth.

DR. A. C. KINGSLEY, as a special feature, presented case 11288, a spinal cord tumor, location of which was shown by lipiodol injection into the canal, and tumor was operated upon by Dr. Vivian.

At the December 12th meeting of the staff, the program was on the subject of fractures of the head, thorax and spine, under the direction of Dr. Bannister, of the Executive Committee.

Communication from the College of Surgeons was read, in which they made suggestions with regard to staff meetings and other work in the hospital. This letter had previously come before the Advisory Committee and been thoroughly discussed by them.

A summary of the work in the hospital for November was presented. This was prepared by the Records Department.

DR. A. M. TUTHILL discussed several cases of spine fracture, criticizing the records kept, with respect to the history of the injury, the progress in the hospital, the final examinations and the follow-up.

DR. R. J. STROUD summarized the records on the head injuries in the hospital for the past year, with a critical review of the proper treatment for head injuries, designating the proper class for each of the cases treated in the hospital.

DR. S. I. BLOOMHARDT reviewed the rib injuries treated in the hospital, with comments upon the treatment of various such injuries.

Dr. W. W. WATKINS showed x-ray illustrations of several of the cases discussed and criticized and the method of handling seriously injured patients when they are sent for x-ray examination or otherwise handled in the hospital. He suggested that some definite technic be worked out for handling such patients.

This being the annual meeting for the election of officers for the ensuing year, the following were elected:

Chairman of Staff, Dr. E. Payne Palmer.

Secretary of Staff, Dr. Dudley Fournier.

Two-year members of Advisory Committee, Drs. J. M. Greer, Geo. M. Brockway and Fred Holmes.

STAFF MEETING
(October)
(Continued from last month)

CASE III.

Case 1636, brain hemorrhage, was presented by DR. SHELLEY, as follows: Male, 54 years of age; native of California and of Spanish descent; mining engineer by occupation. Family history not obtainable, but his mother is living and is past 80 years of age. Has always been in good health until present illness. His friend says he has worried considerably over finances. There is no history of mental or nervous diseases in the family. On Aug. 16, 1927, he presented himself because of aphasia. At this time he could speak fairly well

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but now and then could not think of a word. It might be the most simple or insignificant word that he lost. Examination at this time revealed that he felt as well physically as usual. No pains nor headache. Urinalysis was negative. Blood pressure 110 over 80. On other occasions during the next few weeks systolic pressure was as low as 90. Blood Wassermann was negative. Tonsils and nose negative. Teeth were filthy, with bad breath and gums unhealthy. I sent him to a dentist for x-ray. Dentist found some apical abscesses, extracted the teeth that were affected or suspicious and cleaned the others. The reflexes were practically normal. The pupils were normal in size and regular and reacted to light. I wanted him to have a spinal puncture but he would not consent. He was on treatment with K. I. but his aphasia became progressively worse until Oct. 1st; there were signs of paralysis in the right arm and hand. At this time he still had a fair grip in the hand and could walk, but the right leg did not feel normal, and signs of paralysis could be noted in his face. By Oct. 3rd. his right hand was moved with difficulty and only slightly; could not walk and there was involuntary urination, and no bowel actions. On Oct. 6th he was admitted to the hospital. At this time he was unable to speak at all, but seemed to know everything that was said to him. A spinal puncture was made and there was no undue pressure. The fluid was clear with only 13 cells per cubic mm. and it was Wassermann negative. Blood hemoglobin, 90 per cent; leucocytes, 8,360; monos., 22 per cent; and polys., 78

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per cent. Dr. Hamer made the following physical examination::

Fairly well developed, somewhat emaciated. The patient is a white man, foreigner, who lies somewhat in a stupor and can be aroused only with difficulty. The head is of normal size and conformation. Ears: canals patent and normal. Drums show moderate thickening; the left is opaque in its superior portion. Eyes: dull expression; lids are partially closed but are elevated equally. Eyes show a slow lateral nystagmus. No strabismus, ptosis, exophthalmus. Pupils are average in size, equal; the left is irregular; both react to light sluggishly, and patient does not cooperate to test for accommodation. Nose: septum straight, no obstructions or perforatoins. Mouth: teeth in rather poor condition. Tongue coated white, and protruded to the right. Throat clean. Face: mouth droops at its right angle, and right cheek lags when patient smiles. Neck: symmetrical, thin. No glandular or thyroid enlargement. Chest: symmetrical, right chest somewhat slower in expanding than left; resonant throughout; no areas of increased pitch, or density; bronchovesicular breath sounds with a few coarse, moist rales heard at both bases. Heart borders within normal limits; no murmurs. Sounds are quite soft in quality, faintly heard, and not accentuated. Aorta: no evidence of enlargement or dilatation. Abdomen: tones of right rectus less than left; abdomen flat, no masses or fluid; viscera not enlarged to palpation or percussion. Genitalia: no abnormalitels; no penile eruptions, scars, or discharge. Extremities: no edema nor scars; nails are pale. Neuromuscular reflexes; biceps, patellar, and achilles, slightly more active on left than right.

The right upper extremity is the seat of a flaccid paralysis. No movement can be executed actively. The right lower extremity is paretic; patient can flex knees slightly, also extend and flex toes slightly. No Babinski nor clonus obtained on either side. There is little if any atrophy of paretic muscles. Patient responds to normal sensory stimulations. The patient cannot respond to questions involving speech, altho at times an effort is made. There is a better recognition of things said than of words spoken. Patient however, does not cooperate in tests involving words seen nor heard; nor does he write things suggested.

The treatment was potassium iodid, bismuth, salicylate and mercurosal. The first few days at the hospital, he seemed to improve slightly in mentality and in the matter of taking food. He even tried to talk some, although he could not be understood. Paralysis, on the whole, was slowly progressive and there were days when he was practically comatose. On the 16th, he lapsed into unconsciousness, became pulseless with heart sounds very indistinct and respiration gradually slower, and he died at 8:30 in the evening of the 16th.

With the persistent low blood pressure and the absence of any apparent arteriosclerosis together with the very gradual progress of the trouble. I think the exact nature of the lesion might be in doubt. The cause of death on the death certificate was given as endarteritis of the middle meningeal artery; hemiplegia.

DR. KINGSLEY said he had seen this case the day before death. He said that the man was unable to write or to speak. His speech soon became a jargon because of the type of aphasia. The lesions must have been above the pons. The conclusions were that there was a subcortical lesion in Broca's area in the third frontal convolution.

DR. VIVIAN asked whether mercurosal and potasium iodid were adminsitered at the same time.

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He said that it is printed upon the mercurosal box that this drug is incompatible with potassium iodid.

DR. SHELLEY replied that he believed that the two drugs had been administered simultaneously; he further stated that the case seemed to be one of hemorrhage; but the fact that the man had low blood pressure made the diagnosis perplexing.

CASE IV.

Case 114 was presented by DR. WATKINS as Dr. Vivian had been called out. This was a female 69 years of age. Something over a year ago she was sent to the laboratory for an x-ray examination of the shoulder, for suspected subacromial bursitis. At that time minor changes in the head of the humerus were found. Patient was brought back for second x-ray a month later. This showed definite changes suggesting sarcoma of the head of the humerus. She was taken to hospital and head of humerus was operated upon; it was cauterized and radium was implanted in the bone, as the tumor had proved to be a medullary growth. Dr. Watkins said he would not now do this, as more recent reports indicate that it is not best to put radium inside bone cavities.

The wound showed tendency to heal; she was given x-ray treatment to entire shoulder. Metastases however, began to develop. On March 30, after lipiodal injection, an x-ray of the shoulder showed a considerable amount of the opaque material surrounding head of humerus; there was evidence of bone destruction. On May 17, an x-ray indicated that there had been no definite advance. On July 14, the radiographs showed a marked involvement of the upper end of the humerus and a fracture 2½ inches below articulation. The scap-

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ula also showed a reduction in density, probably indicating diffuse involvement. There was a very complete record of examination of this patient but nothing of particular interest is found except that already given.

DR. HAMER said that this patient was in the hospital on March 1, 1927, when he first came to the hospital. He said at that time there was no evidence of metastases. She had a very painful urethra; later she had a rectal hemorrhage; a cauliflower growth was found in the rectum; the urethral pain was very difficult to control; various agents were employed but cocaine gave about the only relief. She had marked gastro-intestinal disturbances and sometimes evidence of bowel obstruction. At times the nausea was so bad that she could scarcely take even water. It would indicate that metastases were general. No evidence was found of metastases in the lungs. There was considerable drainage from the sinuses about the shoulder and there was pain in the shoulder.

DR. RANDOLPH said that almost invariably the termination in these cases was by metastases in the lungs by means of the blood stream. He saw one case in San Francisco who had her foot amputated 11 years before for sarcoma and at that time had metastases in the lungs. The type of the cell was the same in each instance.

CASE V.

Case 1459, trichiniasis, was reported for Dr. Bannister, by DR. HAMER. Dr. Hamer said that there is an incompatibility here—a Jewish woman with trichiniasis. About the middle of June, the patient noticed swelling of feet, ankles and legs; later, a rash appeared on legs, and bottoms of feet were hard, although not calloused. In July, patient noticed swelling of right arm; later, the left, and swelling of all the joints; a rash appeared on both arms. About four weeks ago, patient began having trouble with her stomach, aching and tenderness Bowel movements not normal; alternating constipatoin and diarrhea. Some nausea and vomiting. She became restless, had frequent headaches, general malaise, and tired with the slightest exertion. Muscles of body seemed sore and tender. Has been having a temperature off and on during this illness, rising to 100. Since a tentative diagnosis of trichiniasis has been made, patient was questioned about having eaten pork, and states that she does not remember having ever eaten any and that she does not serve it in her home.

When a child, she had measles, mumps, scarlet fever, pertussis and pneumonia. No complications. Had nasal polypi removed last winter by Dr. McLoone; otherwise, no eye, ear, nose or throat trouble. Respiratory system: has had asthma for the past three years; came to Arizona in October because of this, and it has improved since then. No history of any tuberculosis in family. Digestive system: :never a heavy eater; no digestive trouble; bowels slightly constipated. Renal: negative with exception of more frequent urination during the present illness. No operations. Menstruation began at age of 14, regular, moderate flow, duration five days, no cramping. Slight leukorrheal discharge. Married three years; husband living and well; no children; no miscarriages.

Patient lies in bed in dorsal position, appearing anemic, acutely ill and legs flexed. Muscular system seems to be affected. Muscles of face not tender or firm. Those of forearm are somewhat

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St. Joseph's Sanatorium
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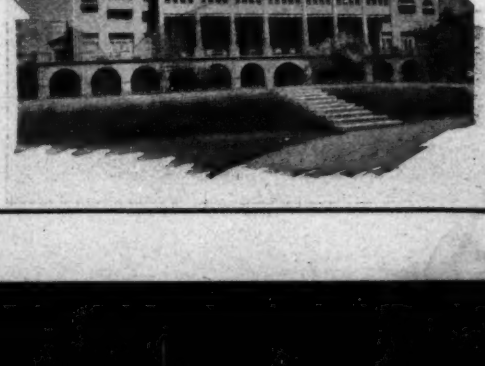
Sisters of St. Joseph
Nazareth Motherhouse, Concordia, Kansas

Heliotherapy

O. E. Egbert, M. D. Medical Director
Sister Mary Ursula Superior



firm, indurated, tight with swelling; movement of flexors of right forearm is painful. Abdominal muscles and lower thoracic extremely painful, especially on right side in upper quadrant; muscles of extremities (lower) feel slightly drawn and firm, but are not tender; neck muscles are slightly tender. Head and neck: no tenderness of face or scalp; ears are normal; drums clear, with no abnormalities. Eyes: expression dull, no deviations, hemorrhages, icterus or ptosis. Lids slightly swollen, right pupil irregular; both react to light and accommodation. Nose: septum irregular and deviated; no tumors. Mouth: teeth in good condition. Tongue coated, breath foul, throat clear. Several palpable lymph nodes on left side of neck. Voice husky. Chest: expansion fair on both sides; percussion slightly higher in pitch over left top; breath sounds clear, vesicular throughout; no rales heard. Heart and vessels have no enlargement nor displacement; sounds clear, rapid; no thrills; aortic sounds faint; no murmurs; pulse full, regular, equal, with dicrotism perceptible. Abdomen: tender throughout, especially on right; no enlargement of liver or spleen, to percussion or palpation; no fluid or masses; no rigidity except for a protective response upon palpation. Nails very pale. Reflexes normal throughout. No gross sensory changes. Impression: trichiniasis.

A section of muscle from the forearm was taken, and was examined fresh in glycerine, but failed to show any trichina or cellular changes. Blood culture was negative; leucocyte count around 10,000 Patient was discharged from the hospital for first time, after 25 days, and returned about three weeks later. She has since had a stormy course. She manifested a good deal of hysteria but the pain has unquestionably been severe. The abdomen has been distended and painful at various times. Gastro-intestinal examination with x-ray showed a normal pylorus and duodenal cap. Stomach emptied itself in normal time, and meal reached the colon at about the usual time. The appendix was irregular, filled and sharply curved but was not apparently tender. The eosinophil count has been high, at times as high as 30 per cent. During the past week or more the patient has been gradually failing.

On motion of the secretary and seconded by several of the men, Dr. Thomas was unanimously voted thanks and appreciation for his two years as president of the Staff. Dr. Randolph moved, and it was seconded by Dr. Greer, that vote of thanks be extended to the hospital for the excellent dinner. Carried.

There being no other business the president announced that the meeting adjourned.

ORVILLE HARRY BROWN,
Secretary.

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